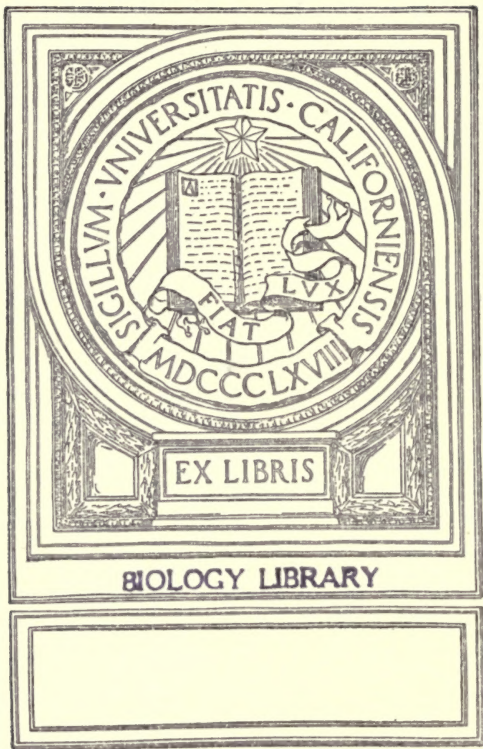


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A

BOTANY
OF THE

NORTHERN AND MIDDLE STATES;

OR

A DESCRIPTION OF THE PLANTS FOUND IN THE UNITED
STATES, NORTH OF VIRGINIA,

ARRANGED ACCORDING TO THE NATURAL SYSTEM.

WITH

A SYNOPSIS OF THE GENERA ACCORDING TO THE LINNEAN SYSTEM—

A SKETCH OF THE RUDIMENTS OF BOTANY, AND

A GLOSSARY OF TERMS.

BY

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SOCIETY OF MONTREAL; OF THE NEW-YORK LYCEUM;
AND OF THE ALBANY INSTITUTE, &c.

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REV. LEWIS DE SCHWEINITZ, PH. D.

&c. &c.

THIS WORK

IS

INSCRIBED,

AS A TRIBUTE OF RESPECT AND ESTEEM,

BY HIS OBLIGED FRIEND,

LEWIS C. BECK.

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PREFACE.

THE object of this work is to furnish a description of the plants of which it treats, adapted to the present state of botanical science. In accordance with this design, I have followed the natural method of arrangement, which has already received the sanction of the best botanists of Europe, and cannot fail of being adopted by those of our own country. For the purpose of contributing in some degree to the accomplishment of this desirable result, I have given, as shortly as possible, the characters of the Natural Orders, which are arranged according to the method of Jussieu as modified by De Candolle. In this part of the work, I have consulted with great advantage the article BOTANY in the new edition of the *Encyclopædia Britannica*; and indeed, I have, with few exceptions, adopted the arrangement and characters of the orders there given. Of the article in question, I regret that I have as yet been unable to ascertain the name of the author, but it bears throughout the impress of one who is thoroughly versed in the subject of which it treats. I should also mention, that I have derived much assistance from Prof. Lindley's *Introduction to the Natural System*.

With regard to the Genera, some alterations, and as it is conceived, improvements, will be observed by the botanist. These consist, generally, in the adoption of the views of De Candolle and others, who have made the natural system a particular study. As some of the Linnæan genera are thus divided, and others remodelled, it may form a ground of objection on the part of those who have not duly considered the subject. But it should be remembered, that Botany is a progressive science; and it would be strange indeed if the labors of botanists, since the time of Linnæus, should not have resulted in a more correct knowledge of plants, and

hence of the proper mode in which they should be grouped together. It is difficult to determine the true import of the Linnæan maxim, "let the genus give the character"; but if it is intended by it that the characters thus established should be so modified as to embrace all new plants, or that the genera should not be divided as nature seems to warrant, it is, in my opinion, quite as much honored "in the breach as in the observance."

In the description of the Species, in addition to my own observations, I have freely availed myself of all the sources of information within my reach. The works on American Botany have been constantly consulted; especially Pursh's *Flora*, Torrey's *Flora and Compendium*, Elliott's *Sketch*, Nuttall's *Genera*, Bigelow's *Flora*, Muhlenberg's *Grasses*, and his *Catalogue*, &c. In this part of the work, it has been my object to give an accurate and sufficiently detailed description, together with the habitat and geographical range of each species, and such popular characters and illustrations as it was thought would be an additional guide to the beginner. It may be observed, that I have generally adopted the specific characters of De Candolle, as far as the Natural Order *Compositæ*. With regard to the *Glumacæ*, I have, with few exceptions, adopted the views of Dr. Torrey. Dr. Hooker's valuable *Flora Bor. Amer.* and Richardson's *Appendix to Franklin's Narrative*, have afforded me the means of determining the Northern limits of many of our plants. For the Southern limits I have generally depended upon Elliott, and upon the information which I have received from my friends, Prof. T. R. Ingalls of Louisiana, and Dr. Isaac Branch of South Carolina; and for the Western, upon my own observations, and upon those of Mr. Nuttall, and other botanists who have explored the region west of the Mississippi. I should also state, that while this work was

passing through the press, I received through the kindness of Mr. Albert R. Fox of Sand Lake, a catalogue of the plants found by Dr. Houghton, now of Detroit, in his interesting tour to the sources of the Mississippi.





This work being intended as a text-book for the beginner, as well as a convenient manual for the more advanced botanist, I have added a Sketch of the Rudiments of Botany, drawn chiefly from Prof. Lindley's Outlines, and the article in the Encyclopædia, to which I have before referred;—a Glossary of Terms, and a Table of the Linnæan Classes and Orders. And to accommodate those who wish to investigate plants according to the Artificial System, a Synopsis of the Genera is also introduced, containing under each genus a reference to the Natural Order, and the page where the species are described. I have not introduced any cultivated exotics, for the reasons, 1st, that it would have materially increased the size and expense of the work; and 2dly, that observation has satisfied me of the injurious effects, of commencing the study of botany with the examination of plants, which are often so much changed in their characters by a difference of climate, soil, cultivation, &c.

It only remains for me to present my acknowledgments to those individuals who have afforded me assistance and encouragement, in the prosecution of my design. To the Rev. L. D. de Schweinitz, I am under particular obligations, for the important aid which he has rendered. Nor should I omit to mention, that I am indebted to Dr. Asa Gray, of Utica, for much interesting information concerning the Botany of Western New-York. In all cases it has been my object to give due credit for every new or interesting fact which has been communicated to me.

ALBANY, *May*, 1833.

ABBREVIATIONS AND CHARACTERS.

<i>All.</i>	Allioni.	<i>Mich.</i>	Michaux.
<i>Bart.</i>	Barton.	<i>Mich. f.</i>	Michaux the younger.
<i>Big.</i>	Bigelow.	<i>Muhl.</i>	Muhlenberg.
<i>De Cand.</i>	De Candolle.	<i>Nutt.</i>	Nuttall.
<i>Desf.</i>	Desfontaines.	<i>P. de B.</i>	Palisot de Beauvois.
<i>Desv.</i>	Desvauts.	<i>Pers.</i>	Persoon.
<i>Eat.</i>	Eaton.	<i>Raf.</i>	Rafinesque.
<i>Ell.</i>	Elliott.	<i>R. & S.</i>	Roemer and Schultes.
<i>Gmel.</i>	Gmelin.	<i>Rich.</i>	Richard.
<i>Good.</i>	Goodenow.	<i>Salisb.</i>	Salisbury.
<i>Gron.</i>	Gronovius.	<i>Schk.</i>	Sehkuhr.
<i>Hook.</i>	Hooker.	<i>Schreb.</i>	Schreber.
<i>Jacq.</i>	Jacquin.	<i>Schw.</i>	Schweinitz.
<i>Juss.</i>	Jussieu.	<i>Spreng.</i>	Sprengel.
<i>Lam.</i>	Lamarck.	<i>Torr.</i>	Torrey.
<i>Lamb.</i>	Lambert.	<i>Tourn.</i>	Tournefort.
<i>Lehm.</i>	Lehmann.	<i>Trin.</i>	Trinius.
<i>L'Herit.</i>	L'Heritier.	<i>Walt.</i>	Walter.
<i>Light.</i>	Lightfoot.	<i>Wangh.</i>	Wangenheim.
<i>Lind.</i>	Lindley.	<i>Willd.</i>	Willdenow.
<i>Linn.</i>	Linnæus.	<i>Vent.</i>	Ventenat.

-
-  Annual.
 Biennial.
 Perennial.
 Shrubby or arboreous.
Can. Canada,
Car. South Carolina, unless preceded by an N.
 when it is intended for North Carolina.
W. to Miss. As far West as Missouri.
W. to Mich. As far West as Michigan.

SKETCH OF THE RUDIMENTS OF BOTANY.

ELEMENTARY ORGANS.

1. The tissue of which plants consist, appears under four forms, viz: cellular tissue, woody fibre, spiral vessels, and ducts. These are called elementary organs.

2. *Cellular Tissue* or *parenchyma* is composed of transparent vesicles, variously cohering with each other. It is the only form universally found in plants; the other forms being often partially or entirely wanting.

3. *Woody Fibre* is a tissue consisting of elongated tubes, similar to the vesicles of cellular tissue, and is therefore often called *elongated cellular tissue*.

4. *Spiral Vessels* are formed of elastic tissue, twisted spirally into the form of a cylinder, and capable of being unrolled. They only exist in plants propagated by stamens and pistils, and hence the two primary divisions of the vegetable kingdom into Vasculares and Cellulares.

5. *Ducts* are elongated, transparent tubes, composed of tissue that is not capable of unrolling.

6. All these forms are covered by a membrane called the *cuticle*.

7. From peculiar combinations of the elementary organs are formed the compound organs.

ROOT.

8. The *root* is formed by the descending and dividing fibres of the stem; and by it plants are with few exceptions fixed to the earth, and nutriment absorbed.

9. It is distinguished from the stem by the absence of leaves, of pith even in those plants in which it is abundant in the stem, and of spiral vessels.

10. It usually consists of three parts; the *neck*, (*collum*) or line of separation from the stem; the *body* or middle portion; and the *fibres* or little roots, through which the nourishment is principally derived.

11. The following are the principal kinds of roots:

a. *Conical*, or principal tap root as it is sometimes called; tapering downwards and emitting fibres from various parts of its surface; as in the carrot.

b. *Fusiform*, when the conical root is attenuated towards the neck, as well as below; as in the radish.

c. *Napiform*, when it is swollen out extremely in the upper part and suddenly attenuated below; as in the turnip.

d. *Abrupt*, when the fusiform root is as it were cut off suddenly.

a. Fibrous, a collection or bundle of fibres connected by a common head and often merely by the base of the stem ; as in the grasses.

f. Fasciculated, when the fibres swell out slightly in the middle.

g. Tuberous, a fibrous root bearing either at its neck or here and there attached to its fibres one or more tubers, fleshy, and containing much starchy feculent matter. These tubers are properly short subterranean stems, containing usually eyes or buds from which new plants arise. —The root should be called *tuberiferous*.

h. Granulated, a collection of small tubercles with eyes fit for the reproduction of a plant, but not enveloped by cellular tissue filled with starchy matter.

i. Bulbous, consisting of a number of scales or coats closely applied to each other, with a crown at the top and fibres below. —It performs the office of a bud, and such roots may rather be termed *bulbiferous*.

12. The *direction* of the root is usually towards the centre of the earth ; but it is sometimes *contorted* or bent upwards and downwards in a zigzag manner ; or *creeping* when it proceeds laterally at right angles from this. These have often been confounded with subterranean branches ; the last of which only are troublesome to the agriculturist.

STEM.

13. This is the part which springs upwards during the germination of a seed ; it is the intermediate body between the root and the leaves.

14. When the stem of a plant arising from a seed is evident, the plant is termed *caulescent* ; and when not apparent or scarcely so, the plants have received the name of *acaules*, or *stemless*.

15. When the stem instead of ascending, stretches either wholly or in part, under ground, emitting here and there roots from below and branches or leaves which rise upwards, it is called a *rhizoma* ; or if it do not emit fibres, a *cornus*. Most of what Linnæus incorrectly described as creeping roots are of the former description.

16. *Stolons* or *runners* are long stems of a peculiar nature issuing horizontally from a plant, and emitting only from the extremity roots and leafy buds, as in the strawberry.

17. The stem varies in structure, in three principal modes.

18. In vascular plants it is either formed by successive additions to the outside of the wood, when it is called *Exogenous* ; or by successive additions to its centre, when it is called *Endogenous*. In cellular plants it is formed by the union of the base of the leaves, or by a simple elongation or dilatation where no leaves or buds exist.

19. The stem of *Exogenous* plants may be distinguished into the pith, the medullary sheath, the wood, the bark, the medullary rays, and the cambium.

20. The *pith* is a mass of spongy cellular tissue occupying the centre of the stem.

21. The *medullary sheath* surrounds the pith, and consists of spiral vessels and ducts. It communicates on one side with the pith and on the other with the medullary rays, leaf buds and veins of the leaves.

22. The *wood* lies upon the medullary sheath and consists of concentric layers, one of which is formed every year. These layers are

composed of cellular tissue, woody fibre and ducts, and are traversed by the *medullary rays* composed of cellular tissue, and connecting the centre with the circumference.—The fully formed or central layers are called the *heart-wood*, and the exterior the *alburnum*.

23. The *bark* surrounds the wood, and like it consists of concentric layers, but of these the hardest or most fully formed is exterior and the youngest interior. Each concentric layer is composed of woody fibre and ducts covered externally by a layer of cellular tissue;—the woody fibre and ducts constituting the *liber*; and the outer cellular tissue, the *epidermis*.

24. The *cambium* is a viscid secretion which is formed in the spring, between the liber and alburnum.

25. The stem of *Endogenous* plants presents no distinction of pith, medullary rays, wood and bark, but is formed of bundles of ducts and spiral vessels interspersed through a cellular tissue; and this is surrounded by a stratum of cellular tissue and woody fibre different from bark, inasmuch as it cannot be separated from the stem itself. Such plants have their diameter increased by the addition of central vascular tissue and ducts.

26. Projections from the medullary sheaths sometimes reach the circumference of the stem and branches, forming what are called *nodi*, to which are attached leaves and leaf buds, and the spaces between these are called *internodia*.

27. Whatever is produced by the evolution of a leaf bud is a branch: A *spine* therefore is a kind of branch; it differs from the *prickle* which is a mere dilatation of the cellular portion of the bark.

28. The stem peculiar to the grasses and other allied tribes is termed a *culm*. This is simple or rarely branched, generally hollow within or fistulose, and separated at intervals by knots or partitions from which issue the leaves.

29. The stem may be simple or branched, and with the branches may be *cylindrical*, or *conical*; *round*, (*terete*,) or *angled*; *smooth*, *furrowed*, or *rough*, or *hairy*, &c.

30. With regard to duration the stem is

a. *Annual*, (☉) when it is completely developed and decays during the same season.

b. *Biennial*, (♂) when it produces fruit the second season and then decays.

c. *Perennial*, (24) when it produces flowers and fruit during many successive seasons.

31. The term *herb* or *herbaceous* employed in opposition to *perennial*, denotes that the stem generally dies down to the ground every year.

LEAF-BUDS.

32. Buds are of two kinds, leaf-buds and flower-buds.

33. *Leaf-buds* consist of rudimentary leaves surrounding a vital point, the tissue of which is capable of elongation; upwards in the form of stem, and downwards in the form of wood or root.

34. *Flower-buds* consist of rudimentary leaves surrounding a point, which does not elongate after it is once developed, and assumes when fully developed, the form of reproductive apparatus.

35. Leaf-buds are of two kinds ; the *regular* only found in the axils of the leaves ; and the *adventitious* which may be produced wherever there is an anastomosis of woody fibre.

36. Leaf-buds have sometimes been confounded with roots by old botanists. A *bulb* is a leaf-bud.

LEAVES.

37. Leaves are those expansions which issue laterally from the stem and branches of plants. They take their origin from the bark, and are always to be observed, whether perfect or rudimentary, immediately below the leaf-buds.

38. Those leaves situated near the root are often larger, and of a different shape from those higher up the stem ; the former are termed *radical*, the latter *cauline*.

39. A leaf consists of a petiole, a lamina or limb, and a pair of stipules ; but sometimes only one of these three parts can be observed.

40. The *petiole* is the channel through which the vessels of the leaf are connected with those of the stem ; it is formed of one or more bundles of spiral vessels and woody fibre, enclosed in a cellular integument.

41. The *lamina* of a leaf is an expansion of the parenchyma of the petiole, and is transversed by veins which are ramifications or extensions of the bundles of vascular tissue of the petiole, or when there is no petiole, of the stem.

42. These veins either branch in various directions among the parenchyma, anastomosing and forming a kind of net-work, or they run parallel to each other, being connected by single transverse unbranched veins ; the former structure being characteristic of *Exogenous*, and the latter, of *Endogenous* plants. To this the *Conifera* and *Cycadææ* form perhaps the only exceptions ; these having the stems of the *Exogenous*, but the same arrangement of the veins as in the *Endogenæ*.

43. The principal vein of a leaf is a continuation of the petiole, running in a direct line from the base to the apex of the lamina, and is called the *midrib*.

44. The lamina is variously divided and formed ; it is usually thin and membranous, with a distinct upper and under surface, but sometimes becomes succulent, when the surfaces cannot be distinguished.

45. A leaf is either simple or compound ; *simple* when its lamina is undivided, or when, if separated into several divisions, these segments are not articulated with the petiole ; *compound* when the lamina is articulated with the petiole.

46. The modes in which leaves are divided are distinguished by particular names, as *pinnate*, *pinnatifid*, *bipinnate*, *bipinnatifid*, &c. &c. These terms apply to the mode of division, and are equally applicable to simple and compound leaves.

47. *Stipules* are those small foliaceous organs sometimes situated on each side at the base of the petiole. They never occur in the *Endogenæ*, nor in any *Exogenous* plants that have sheathing petioles, and are rarely found in genera with opposite leaves. They are sometimes transformed into leaves ; they sometimes have leaf-buds in their axils ; and sometimes also they are changed into spines.

48. Leaves are originally continuous with the stem, but afterwards, from a cause which is still unknown, an articulation more or less complete takes place and the *fall of the leaf* ensues.

49. The mode in which leaves are arranged within their bud is called *vernation* or *gemmation*. This varies much in different groups of plants.

FLOWER-BUDS.

50. The *flower-bud* consists of imbricated rudimentary or metamorphosed leaves, the external or inferior of which are usually alternate, and the internal or superior always verticillate or opposite; the latter are called *floral envelopes* and *reproductive organs*.

51. The leaves from the axils of which the flower-buds arise are called *bracts*, (*bractæ*,) or *floral leaves*; and those leaves which appear on the pedicel between the bracts and calyx, are called *bracteolæ*. These, although essentially distinct, are often confounded with the former.

52. When a single bract is rolled together, highly developed, and coloured, and is placed at the base of the form of inflorescence called a spadix, it is named a *spathe*, (*spatha*.)

53. When several bracts are verticillate or densely imbricated around the base of the forms of inflorescence called the umbel, or capitulum, they are termed an *involucre*; and those at the base of each partial umbel are called *involucels*.

54. Small imbricated bracts are often called *scales*; as in the *Compositæ*.

55. Bracts, when placed immediately below the stamens and pistils, as in apetalous flowers, are only distinguished from the calyx by being alternate with each other, and not verticillate; hence the *glumes* and *paleæ* of grasses are bracts and not calyx.

56. The elongation of the axis of the flower bud from the point of its connexion with the stem, as far as the floral envelopes, is called the *peduncle*.

57. When several peduncles spring from the axis near to each other, the axis is termed a *rachis*, and the peduncles themselves are called *pedicels*.

58. Those axes that spring from the earth and bear no true leaves are denominated *scapes*.

59. The modes in which the flower-buds are arranged are called *forms of inflorescence*; and the order in which they unfold, is called the *order of expansion*.

INFLORESCENCE.

60. When a flower-bud gives rise to only one flower, terminal on its peduncle, and the axis of the plant does not elongate beyond the bud, the flower is commonly called *terminal* and *solitary*.

61. When the axis, however, continues to elongate and the bract retains the form and size of a leaf, the flower is called *axillary* and *solitary*.

62. If the buds instead of giving rise to one terminal flower have the axis elongated, bearing several flowers, and each flower on a peduncle, a *raceme* is formed.

63. When each flower is sessile or placed in the axil of the bracts, without a peduncle, a *spike* is produced: Hence the only difference between a spike and raceme is, that in the former the flowers are sessile and the latter stalked. The term spike, however, is applied in those cases where the peduncle is scarcely perceptible.

64. A *spadix* is a sort of spike, in which the flowers are closely packed together upon a succulent axis, which is enveloped in a *spathe*.

65. An *ament* or *catkin*, is a spike, the bracts or scales of which are nearly of equal size and closely imbricated, and which is articulated with the stem.

66. When a bud produces flower-buds, with a little elongation of its own axis, either a *head*, (*capitulum*,) or an *umbel* is produced. The former bears the same relation to the latter as the spike to the raceme; that is, they differ in the flower-buds of the head being sessile, and of the umbel having pedicels.

67. A raceme, the lowest flowers of which have long pedicels and the uppermost short ones, forming a sort of level top, is a *corymb*.

68. A *panicle* is a raceme, the flower-buds of which have, in elongating, developed other flower-buds.

69. A panicle, the middle branches of which are longer than those of the base or apex, is termed a *thyrs*.

70. A panicle, the elongation of all the ramifications of which is arrested, so that it assumes the appearance of an umbel, is called a *cyme*. The cyme may have the lateral branches very short and the flowers clustered together, forming a *fascicle*; or it may be so contracted and the ramification of it so little apparent, as to be confounded with the true head, when it is called a *glomerule*.

71. In all the modes of *simple inflorescence*, that is those which proceed from the buds of a single branch, the flowers expand first at the base and last at the summit. This kind of expansion is called *centripetal*.

72. When the inflorescence is *compound*, or the result of the expansion of several buds or branches, the uppermost or central flowers are first developed, and lastly the outer or lower ones. This kind of expansion is called the *centrifugal*.

FLORAL ENVELOPES.

73. These immediately surround the stamens and pistils and are formed of one or more whorls of variously modified leaves. When they consist of but one whorl, they are called *calyx*; when of two whorls, the outer is called *calyx*, the inner *corol*, (*corolla*.)

74. If the floral envelopes are of such a nature that it is not obvious whether they consist of both calyx and corol, or calyx only, they receive the name of *perianth*, or *perigonium*.

75. Some plants have no floral envelopes; the flowers are then said to be *naked* or *achlamydeous*.

76. The *calyx* consists of two or more divisions, usually green, called *sepals*, which are either distinct, when a calyx is said to be *polysepalous*, or which unite by their margins in a greater or less degree, when it is called *monosepalous* or *monophyllous*, (more properly *gamosepalous*.)

77. The *corol* or *corolla* consists of two or more divisions, more or less coloured, called *petals*; when the petals are distinct, a corol is said to be *polypetalous*; when they are united by the margins, it is called *monopetalous*, (more properly *gamopetalous*.)

78. When all the petals are equal, the corol is said to be *regular*, but when they are unequal in size or cohere unequally, it is then called *irregular*.

79. The regular monopetalous corol varies greatly in its form, being *campanulate* or *bell-shaped*, *infundibuliform* or *funnel-shaped*, *rotate* or *wheel-shaped*, &c.

80. The calyx or corol are said to be *labiate* or *bilabiate*, when the sepals or petals are united in one or two parcels.

81. The *papilionaceous* corol consists of five petals; the upper one, usually larger than the others, is called the *vexillum* or *standard*; the two lateral ones, the *alæ* or *wings*; and the two lower ones, usually more or less united together by their lower margins, the *carina* or *keel*.

82. When the petal tapers conspicuously towards the base, it is said to be *unguiculate* or *clawed*; its lower part is called the *unguis* or *claw*, its upper, the *limb*.

83. The dilated apex of the pedicel, from which the floral envelopes and stamens arise, is called the *torus* or *receptacle*.

84. Whatever intervenes between the bracts and the stamens belong to the floral envelopes, and is either calyx or corol; of which nature are many of the organs commonly called *nectaries*.

85. The manner in which the floral envelopes are arranged before they expand is called their *æstivation*, or *præfloration*.

DISK.

86. Whatever intervenes between the stamens and pistils receives the general name of *disk*.

87. The disk usually consists of an annular elevation encompassing the base of the ovary; but it sometimes appears in the form of a glandular lining of the tube of the calyx, as in the Rose; or of tooth like hypogynous processes, as in the Cruciferae; or of a fleshy mass, as in *Lamium*.

88. The disk sometimes appears to be a mere cellular expansion or the torus, (83) as in *Nelumbium*.

89. It is one of the parts commonly called *nectary*.

STAMENS.

90. The whorl of organs immediately within the petals is composed of bodies called *stamens*, and they are essential to the production of seed.

91. When stamens and pistils occur in the same flower it is termed *perfect* or *hemaphrodite*; but when the stamens are in one flower and the pistils in another, the flowers are *imperfect* or *diclinous*.

92. The number of stamens is variable, five or ten being the usual number among the Exogenous, and three to six among the Endogenous plants.

93. When the stamens do not contract any union with the sides of the calyx, they are *hypogynous* ; as in *Ranunculus*.

94. When they contract adhesion with the side of the calyx, they become *perigynous* ; as in *Rosa*.

95. If they are united both with the surface of the calyx and of the ovary, they are *epigynous* ; as in *Umbelliferæ*.

96. The stamen consists of a filament and an anther.

97. The *filament* is the body which arises from the torus, and is sometimes cylindrical, or awl-shaped, or prismatical, and is even at times expanded, as if into a scale or petal ; but it is not essential to the stamen.

98. The filaments are usually *free* or isolated from each other ; but they are sometimes united into one tube, when they are called *monadelphous* ; or into two parcels, *diadelphous* ; or into several, *polyadelphous*.

99. When they are united into a solid body along with the style, they form what is called a *column*, and are said to be *gynandrous*.

100. The *anther* is a kind of bag borne by the filament, and corresponds to the lamina of a leaf. It is *sessile* when there is no filament, or it is placed at the top of the filament in various ways.

101. The bags or cells of the anther are termed *lobes*, and the solid substance which connects them, corresponding to the midrib of a leaf, the *connectivum*. These cells are usually two in number ; sometimes they are four, rarely one.

102. The lobes or cells of the anthers open in different ways by what is called the *line of dehiscence* ; sometimes only a portion of this line opens, the anther is then said to *dehisce by pores* ; *Ex.* *Azalea*.

103. The anthers frequently grow together by their margins, as in the *Compositæ* ; when they are called *syngenesious*.

104. The anther contains and frequently emits a matter called the *pollen*, the use of which is to give life to the ovule or young seed.

105. When the grains of pollen burst, they again discharge a multitude of very minute particles, called *molecules*, or *granules*.

106. When the grains of pollen easily detach from each other, they are said to be *pulverulent*, and then they may be either perfectly smooth or they may be viscous.

107. Sometimes the grains contained in one cell or bag, instead of separating readily, cohere into what is termed a *pollen mass*, (*pollinia*.) *Ex.* *Orchidæ*.

PISTIL.

108. The *pistil* or *pistillum* is the organ which occupies the centre of a flower, within the stamens, and is the fruit-bearing apparatus of plants.

109. It is distinguished into three parts, viz : the *ovary*, the *style*, and the *stigma*.

110. The *ovary* is a hollow case enclosing the *ovules* or young seeds. It contains one or more cavities called *cells*.

111. The *stigma* is the upper extremity of the pistil.

112. The *style* is that part which connects the ovary and stigma ; but it is often wanting, when the stigma is said to be *sessile*.

113. The pistil is either the modification of a single leaf, or of one or more whorls of modified leaves ; the latter being termed *carpels*.

114. When the margins of the folded leaf out of which the carpel is formed meet and unite, a copious developement of cellular tissue takes place, forming what is called the *placenta*.

115. If no union takes place among the carpels, the ovary is termed *apocarpous*, as in *Ranunculus* ; but if there is an adherence, so that a compound ovary is formed, it is called *syncarpous*.

116. When carpels unite, those parts of their sides which are contiguous grow together, and form partitions between the cavities of the carpels, called *dissepiments*.

117. When these dissepiments are so contracted as not to separate the cavity into a number of distinct cells, but merely project into a cavity, the placenta which occupy the edges of these dissepiments become what is termed *parietal*.

118. If the dissepiments are abortive or obliterated, the placenta remaining unaltered in the axis, a free *central placenta* is formed.

119. A one-celled ovary may also be formed out of several carpels in consequence of the obliteration of the dissepiments ; *Ex.* Nut.

120. If the *ovary* adheres to the sides of the calyx it is called *inferior*, and the *calyx* is said to be *superior*.

121. If it contracts no adhesion with the sides of the calyx, it is called *superior*, and the calyx *inferior*.

OVULUM.

122. The *ovule* or *ovulum* is a body borne by the placenta, and is destined to become the seed ; its position is of great importance in determining natural affinities.

123. When the ovule is fixed by its base to the bottom of one of the cells of the ovary, of which it takes the direction, it is said to be *erect* ; or if it hangs from the summit of the cell, it is *inverted*.

124. When it is attached to the middle portion of the placenta, it may have an upright direction, and is then called *ascendant*, or point downwards and is then *suspended*. Generally, however, the erect and ascendant ovule are confounded under one name, and the inverted and suspended are known by the term *pendulous*.

125. The ovule is either sessile, or on a stalk called the *funiculus* or *podosperm* ; and in either case the point by which the union is formed is termed the *base* of the ovule, and the other extremity the *apex*.

126. The ovule consists of a nucleus and two external coats ; the outer of which is called the *testa* or *primine sac* ; and the inner, the *internal membrane*, or *secundine sac*, or the *tegmen*.

127. The base of the nucleus is always incorporated with the base of the internal membrane, and their common base is attached at some points to the testa. The junction of the three, forms the *chalaza*.

128. The mouths of the primine and secundine sacs usually contract into a small aperture called the *foramen* of the ovule, or the *exostome*. It is through this foramen that the molecules of the pollen are introduced into the nucleus ; and its position indicates the future position of the radicle of the embryo, the radicle being always next the foramen.

129. When the apex of the nucleus is contiguous to the base of the ovule, a connection takes place between the base of the ovule and the base of the nucleus, by a bundle of vessels called a *raphe*.

FRUIT.

130. Fecundation having taken place, the floral envelopes usually fade away, the stamens disappear and the pistil increases in size and becomes the *fruit*.

131. Hence the fruit should have the same structure as the pistil, but this is not always the case, for as the pistil advances to maturity many alterations take place, in consequence of abortion, non-development, obliteration or even union of parts.

132. The *base* of the fruit is the part where it is joined to the peduncle ; the *apex* is where the remains of the style are found.

133. The portion of the pistil called the ovary is in the ripe fruit termed the *pericarp*.

134. The *pericarp* consists of three parts, the outer coating called the *epicarp*, the inner lining called the *endocarp* or *putamen*, and the intermediate substance named the *sarcocarp* or *mesocarp*. Sometimes these three parts are readily distinguished, as in the peach ; but they frequently form one uniform substance, as in the nut.

135. The axis of the fruit is often called *columella* ; the space where two carpels unite is named the *commisure*.

136. If the pericarp neither splits nor opens when ripe, it is said to be *indehiscent* ; but if it does split or open, it is said to *dehisce*, or to be *dehiscent* ; and the pieces into which it divides are termed *valves*.

137. When a fruit is in its simplest state, or formed by the transformation of one carpellary leaf, there may be two sutures or lines by which it may open, the one where the margins of the leaf or the placenta meet, called the *ventral suture*, the other at the part corresponding to the midrib of the leaf, or the *dorsal suture*.

138. If, in a compound fruit, the line of opening corresponds with the junction of the carpels the dehiscence is *septicidal*. Formerly in this kind of dehiscence the *valves* were said to be *alternate with the dissepiment*.

139. If the opening is by the dorsal suture of each carpel, the dehiscence is *loculicidal* ; or as it was formerly said, the *dissepiments* are *opposite to the valves*.

140. When a separation of the pericarp takes place across the cells horizontally, the dehiscence is *transverse*.

141. If the dehiscence is effected by partial openings of the pericarp, it is said to take place by *pores*.

142. All fruits are either *simple* or *multiple* ; the former proceeding from a single flower, as the Apple, Nut, Strawberry, &c. : the latter formed out of several flowers, as the Pine-apple, Fig, &c.

143. Simple fruits are either *indehiscent* or *dehiscent* ; of the former the most important are the *caryopsis*, the *utricle*, the *achenium* and the *drupe*.

144. The *caryopsis*, is where the pericarp is very thin and membranous, and adheres firmly to the integument of the seed ; *Ex.* Wheat and Barley.

145. The *utricle* is similar to the caryopsis, the pericarp being membranous, but it has no adherence with the seed.

146. The *achenium*, (*acine*,) in which the pericarp is hard and bony, as well as distinct from the proper covering of the seed ; as in the *Compositæ*.

147. A *drupe* is a fleshy nut enclosing a putamen ; *Ex.* Cherry and Peach.

148. The *nut* contains a putamen, but the sarcocarp is coriaceous, instead of being fleshy.

149. The dry dehiscent fruits are the follicle and the legume.

150. The *follicle* is a carpel dehiscing by the ventral suture, and having no dorsal suture.

151. The *legume* is a carpel having both ventral and dorsal sutures, by either of which or by both or neither it may dehisce ; rarely the sides fall off, bearing nothing but sutures, which then form a kind of frame, called a *replum*. When articulations take place across the legume and it falls into several pieces, it is said to be *lomentaceous*.

152. Of fruit formed of several carpels the principal are the capsule, the silique, gland, berry, orange, pome, and pepo.

153. The *capsule* is a many-celled, dry dehiscent pericarp.

154. The *silique*, (or *pod*,) consists of two (or four) carpels fastened together, the placentæ of which are parietal and separate from the valves, remaining in the form of a replum and connected by a membranous expansion ; when the silique is very short, or broader than it is long, it is called a *silicle* or *pouch*.

155. The *gland* is a dry bony, indehiscent, one-celled and one-seeded fruit, proceeding from an ovary of several cells and seeds, and enclosed by an involucre called a *cupule*. *Ex.* *Quercus*.

156. The *berry* is a succulent fruit, the seeds of which lose their adhesion when ripe, and lie loose in pulp ; as the grape or gooseberry.

157. The *orange* is a berry having a pericarp, separable into an epicarp, an endocarp and a sarcocarp, and the cells filled with pulpy bags, which are cellular extensions of the sides of the cavity.

158. The *pome* is a union of two or more inferior carpels, the pericarp being fleshy and formed of the floral envelope and ovary firmly united.

159. The *pepo* is composed of about three carpels, the sides of which do not turn far inwards, nor the margins unite. It is a one-celled, fleshy, indehiscent fruit, with parietal placentæ.

160. The most remarkable modifications of multiple fruits are the cone, pine-apple, and fig.

161. The *cone* or *strobile* is an indurated ament. When it is much reduced in size, and its scales cohere, it is called a *galbulus* ; as in *Thuja*.

162. The *pine-apple* in a spike of inferior flowers, which all grow together in a fleshy mass.

163. The *fig* is a fleshy, hollow, dilated apex of a peduncle, within which a number of flowers are arranged, each of which contains an *achenium*.

SEED.

164. The *seed* is the ovule arrived at maturity.

165. It consists of integuments, albumen and embryo; a *naked seed* is only found in those rare cases in which the ovule is naked.

166. The seed proceeds from the placenta, to which it is attached by the *funiculus*; sometimes this becomes expanded about the seed into a fleshy body, called the *aril*.

167. The scar which indicates the union of the seed with the placenta, is called the *hilum* or *umbilicus*.

168. The integuments are called collectively *testa*, and consist of membranes resulting from the sacs of the ovule. These membranes are called by various names.

169. Between the integuments and the embryo of some plants lies a substance called the *albumen* or *perisperm*; the nature of this is of great importance.

170. The albumen is sometimes *farinaceous*, as in the grasses; *coriaceous* and almost *cartilaginous*, as in many Umbelifere; *ruminated* or wrinkled as in Anonaceæ; *horny* as in the coffee-bean; or thin and membranous, as in many Labiatæ.

171. The *embryo* is the organized body that lies within the seed, which is destined to become a plant similar in all respects to the parent. It is usually solitary in the seed, but occasionally there are two or several.

172. The embryo consists of the cotyledons, the radicle, the plumula and the neck.

173. The *cotyledons* represent the undeveloped leaves.

174. The *plumula*, is what is destined to become the stem, and is therefore a rudimentary leaf-bud.

175. The *radicle* is the rudiment of the root, and by germination becomes the root.

176. The *neck* or *collum* is the line of separation between the radicle and the portion above it.

177. The number of cotyledons varies from one to several.

178. Plants that have but one cotyledon, or if with two, then the cotyledons alternate with each other, are *Monocotyledonous*. These are also *Endogenous* plants.

179. Plants that have two cotyledons placed opposite each other, or a greater number placed in a whorl, are called *Dicotyledonous*. These are also *Exogenous* plants.

180. Plants that have no cotyledons, are said to be *Acotyledonous*. But this term is only applied to cellular plants, which having no stamens and pistils, can have no seed.

181. When the radicle is so bent that it touches the back of one of the cotyledons, it is said to be *dorsal*, or the cotyledons *incumbent*.

182. When the radicle is applied to the edge or cleft of the cotyledons, it is said to be *lateral*, or the cotyledons *accumbent*.

183. When the seed is called into action, germination takes place and growth commences.

GLOSSARY OF BOTANICAL TERMS.

The figures refer to the preceding Sketch.

- Abortion*, an imperfect development of any given organ.
- Abruptly pinnate*, pinnate with even pairs only, wanting the odd or terminal leaflet.
- Accumbent*, lying on, prostrate, a term employed in Cruciferae, 182.
- Acerose*, stiff, linear, and sharp, as in the leaves of the Pines.
- Acine* or *achenium*, 146.
- Acotyledonous*, 180.
- Aculeate*, prickly.
- Aculeus*, a prickle; growing to the bark, not to the wood.
- Acuminate*, taper pointed, more than acute.
- Acute*, ending in a sharp point.
- Adnate*, growing to, affixed laterally.
- Agglomerated*, bunched, crowded together.
- Aggregate*, standing together, many on the same receptacle, but not compound.
- Alated*, see *Winged*.
- Albumen*, 169.
- Alternate*, placed alternately on opposite sides of the stem.
- Ament*, or *catkin*, 65.
- Amplexicaul*, see *Clasping*.
- Ancipital*, two edged.
- Androgynous*, having barren and fertile flowers on the same spike, or the same plant, but no perfect ones.
- Annual*, 30 a.
- Anther*, 100.
- Antheriferous*, bearing anthers.
- Apetalous*, without petals.
- Apex*, end, tip, or sharp extremity.
- Aphyllous*, without leaves.
- Appendiculate*, having some appendage.
- Appressed*, pressed against or close to.
- Approximate*, near together.
- Apterous*, without wings. A term applied to some parts of flowers.
- Arboreous*, like a tree.
- Arboriscent*, approaching to the size of a tree.
- Arcuate*, curved or bent like a bow.
- Aril*, 166.
- Aristate*, awned, ending in a bristle.
- Armed*, furnished with thorns or prickles.
- Articulated*, jointed.
- Ascending*, rising from the ground obliquely.
- Assurgent*, rising upwards.
- Attenuated*, gradually diminished or tapering.
- Auriculate*, having an ear-like base.
- Awn*, a stiff bristle, frequently rough or bearded; as in the flowers of certain grasses.
- Awned*, having awns.
- Awnless*, without awns.
- Axil*, the angle between a leaf and stem on the upper side.
- Axillary*, growing in or from the axil.
- Baccate*, berried, having a fleshy coat or covering.
- Banner* or *vexillum*, 81.
- Barren*, producing no fruit, containing stamens only.
- Beak*, any thing which resembles the beak of a bird, hard short points.
- Berry*, 156.
- Bicuspidate*, with two points.
- Bidentate*, with two teeth.
- Biennial*, 30 b.
- Bifid*, two cleft, cut nearly in two parts.
- Biglandular*, having two glands.
- Bilabiate*, having two lips.
- Bilobed*, having two lobes.
- Bilocular*, having two cells.
- Binnate*, growing two together.
- Bipinnate*, twice pinnate, when both the leaf and its subdivisions are pinnate.
- Bipinnatifid*, twice pinnatifid, both the leaf and its segments being pinnatifid.

Biternate, twice ternate, the petiole supporting three ternate leaves.

Bivalved, two valved.

Border, the brim, or spreading part of a corol.

Brachiate, branches opposite, and each pair at right angles with the preceding.

Bract, 51.

Bulb, 36, 11 i.

Caducous, falling early, sooner than deciduous.

Cespitose or *cespitose*, growing in tufts.

Calcarate, resembling, or furnished with, a spur.

Calli, small callosities or rough protuberances.

Calyxiform, shaped like a calyx.

Calyculated, furnished with an additional outer calyx.

Calyptriform, shaped like a calyptra or extinguisher.

Calyx, 73.

Campanulate, bell-shaped.

Canaliculate, channeled or furrowed.

Canescent, whitish, hoary.

Capillary or *capillaceous*, very slender, resembling a hair.

Capitate, shaped like a head, or bearing a head.

Capsule, 153.

Carina, 81.

Carinated, keeled, furnished with a sharp or prominent back like the keel of a vessel.

Carpel, 113.

Caryopsis, 144.

Catkin, see *Ament*.

Caudate, having a tail; as in some seeds.

Caudex, the main body of a tree or root.

Caullescent, 14.

Cauline, growing on the stem.

Cell, a cavity or compartment of a seed vessel, or anther.

Cellular, made up of little cells or cavities.

Chaffy, made of short membranous portions like chaff.

Ciliate, fringed with parallel hairs.

Cirrose, or *cirrhose*, bearing a tendril.

Clasping, surrounding the stem

partly or quite, with the base of the leaf.

Clanate, club shaped, larger at top than bottom.

Claw, the taper base of a petal, 82.

Cleft, split or divided less than half way.

Clypeate, shaped like a Roman buckler.

Coadunate, united at base.

Cochleate, resembling the shell of a snail.

Coloured, different from green which is the common colour of plants.

Columella, 135.

Column, 99.

Comose, covered with cottony hair.

Compound, made up of similar simple parts.

Compressed, flattened.

Cone, 161.

Conglomerate, crowded together.

Confluent, running into one another.

Connate, jointed together at base.

Connivent, converging, the tips inclining towards each other.

Contorted, twisted, bent from a common position.

Convolute, rolled together.

Cordate, heart shaped.

Coriaceous, leathery, tough and thick.

Corneous, horny, having a consistence like horn.

Corniculate, horn shaped.

Corol or *Corolla*, 77.

Cortical, belonging to the bark.

Corymb, 67.

Costate, ribbed.

Cotyledons, 171-2.

Creeping, 12, 16.

Crenate, scolloped, having sharp notches on the edge separated by round or obtuse dentures.

Crenulate, finely or minutely crenate.

Crowned, having a circle of projections round the upper part of the tube of a flower, on its inside.

Cruciform, or *cruciate*, consisting of four petals placed like a cross.

Crustaceous, having a hard brittle shell.

Cucullate, hooded or cowlled, rolled or folded in; *Ex.* spathe of *Arum triphyllum*.

Cucurbitaceous, like gourds or melons.

Culm, or straw, 28.

Cuneate, or *cuneiform*, wedge shaped.

Cupule, 155.

Cuspidate, having a sharp straight point.

Cuticle, 6, 23.

Cyathiform, cup-shaped.

Cylindrical, round and not tapering, cylinder shaped.

Cyme, 70.

Cymose, bearing or flowering in cymes.

Deciduous, falling off, in opposition to persistent and evergreen, later than *caducous*.

Declined, or *declinate*, turned downwards.

Decomound, twice compound, composed of compound parts.

Decumbent, leaning upon the ground, the base only erect.

Decurrent, when the edges of a leaf run down the stem or stalk.

Decursive, see *decurrent*.

Decussated, or *decussating*, in pairs crossing each other.

Deflected, bent off.

Dehiscent, gaping or cracking open.

Deltoid, nearly triangular.

Dentate, toothed, edged with sharp projections separated by notches, larger than *serrate*.

Denticulate, minutely toothed.

Dentures, teeth, the sharp parts which separate notches.

Depauperated, few flowered.

Depressed, flattened or pressed in at top.

Diaphanous, transparent.

Dichotomous, forked, dividing into two equal branches.

Dicoccous, containing two grains or seeds.

Dicotyledonous, 179.

Didymous, twin.

Didynamous, belonging to the class *Didynamia*, with two short and two long stamens and a ringent corol.

Diffuse, scattered, widely spread.

Digitate, when a petiole gives off five or more leaflets from a single point at its extremity.

Dimidiate, halved.

Dioecious, having the barren and fertile flowers on different plants.

Discoid, having a disk covered with florets, but no ray.

Disk, 86; also the centre of a head of flowers of *Compositæ*.

Dissepiments, the partition or internal wall of a pericarp.

Distichous, two-rowed; producing leaves or flowers in two opposite rows.

Divaricate, diverging so far as to turn backward.

Divergent, spreading, separating widely.

Dorsal, growing on, or belonging to, the back.

Drooping, inclining downward, more than *nodding*.

Drupaceous, bearing, or resembling, drupes.

Drupe, 147.

Echinate, beset with prickles, hedgehog like.

Effuse, a term applied to a loose one-sided panicle; *Ex. Juncus effusus*.

Elliptic, oval.

Elongated, exceeding a common or average length.

Emarginate, having a notch in the end.

Ensiform, sword shaped, two edged.

Entire, even and whole at the edge.

Epidermis, see *cuticle*.

Eroded, appearing as if gnawed at the edge.

Esculent, eatable.

Evergreen, remaining fresh through the winter, not deciduous.

Exserted, projecting or extending out of the flower or sheath.

Falcate, sickle shaped, linear and crooked.

Fascicle, 70.

Fascicled, or *fasciculate*, collected in bundles.

Fastigate, flat topped.

Favose, resembling a honey comb.

Fertile, containing perfect pistils and yielding fruit.

Fibrous, being composed of fibres.

Filiform, thread like, or very slender.

Fimbriate, finely divided at the edge like fringe.

Fistulous, or *fistular*, hollow or tubular.

Flabelliform, spreading like a fan.

Flagelliform, like a whip lash.

Flexuous, serpentine or zigzag.

Floral leaf, see *bract*.

Floret, a little flower, one in an aggregate or compound flower.

Follicle, 150.

Frond, the leaf of cryptogamous plants.

Frutescent, or *fruticose*, shrubby.

Fugacious, that which lasts but for a short time.

Funicle, or *funiculus*, 166.

Funnel shaped, tubular at bottom and gradually expanding at top.

Fusiform,

Galea, a helmet; the upper part of a ringent corol.

Geminate, doubled.

Gemmaceous, belonging to a bud, made of the scales of a bud, 49.

Geniculate, bent like a knee.

Germ or *germen*, the old name of the Ovary.

Germination, the sprouting of a seed.

Gibbous, swelled out, commonly on one side.

Glabrous, smooth, as it regards hairiness or pubescence.

Glandular pubescence, hairs tipped with little heads or glands.

Glaucous, sea green, pale blueish-green.

Glomerate, gathered in a round heap or head.

Glume, the scales, valves, or chaff, which make the calyx of grasses.

Glutinous, adhesive, viscid, covered with an adhesive fluid.

Gramineous, resembling grasses.

Granular, formed of grains, or covered with grains.

Gymnospermous, having naked seeds.

Gynandrous, having the stamens growing on the pistils.

Habit, the general external appearance of a plant, by which it is known at sight.

Hamate, hooked, a bristle curved at the end.

Hastate, shaped like a halbert; it differs from *arrow shaped* in having the barbs or lateral portions more distinct and divergent.

Head, 66.

Helmet, see *galea*.

Herbaceous, or *herb*, 31.

Hermaphrodite, 91.

Hilum, 167.

Hirsute, rough with soft hairs.

Hispid, rough with stiff hairs.

Hoary, covered with white down.

Hooded, see *cucullate*.

Horn; see *spur*.

Hybrid, a mongrel or partaking of the nature of two species.

Hypocrateriform, salver shaped, with a tube abruptly expanded into a flat border.

Hypogynous, 93.

Imbricate, lying over each other like scales, or the shingles of a roof.

Incised, cut, separated by incisions.

Included, wholly received or contained in a cavity, the opposite of *exserted*.

Incrassated, thickened upward, larger toward the end.

Incumbent, lying against or across; 181.

Indehiscent, not opening.

Indusium, the involucre or veil which covers the fruit of ferns.

Inferior, lowermost.

Inflated, blown up like a bladder.

Inflexed, bending inwards.

Inflorescence, 59.

Infundibuliform, funnel shaped.

Inserted into, growing out of.

Internode, the space between joints; as in Grasses.

Interruptly pinnate, when smaller leaflets are interposed among the principal ones.

Involucel, a partial involucre, 53.

Involucre, or *involucrum*, 53; also the Indusium.

Involute, rolled inwards.

Irregular corol, 78.

Keel, 81.

Keeled, shaped like a keel.

Kidney-shaped, heart-shaped without the point, and broader than long.

Labiate, 80.

Laciniate, cut or divided into segments.

Lactescent, yielding a white, or milky juice, when wounded; as in the Poppy.

Lacunose, covered with little pits or depressions.

Lamellated, in thin plates.

Lamina, 41.

Lanceolate, spear shaped, narrow, with both ends acute.

Lanuginous, woolly.

Lateral, at the side.

Lax, loose, not compact.

Leafet, a partial leaf, a constituent of a compound leaf.

Legume, 151.

Leguminous, bearing legumes.

Ligneous, woody.

Ligulate, ribbon shaped, a kind of corol found in compound flowers, consisting of a tube at bottom, continued into a long flat portion at top.

Liliaceous, resembling the lily.

Limb, 82.

Linear, long and very narrow with parallel sides.

Lip, the front segment of an orchideous or other flower.

Lobe, a large division or distinct portion of a leaf or petal.

Loment, 151.

Lunate, or *lunulate*, shaped like a half-moon.

Lyrate, pinnatifid, with a large roundish leaflet at the end.

Marcrescent, withering.

Melliferous, honey bearing.

Membranous, or *membranaceous*, very thin and delicate.

Midrib, 43.

Monadelphous, 98.

Moniliform, arranged like the beads of a necklace.

Monocotyledonous, 178.

Monoeious, having barren and fertile flowers on the same plant.

Monopetalous, 77.

Monophyllous, 76.

Monosepalous, 76.

Mucronate, having a small point projecting from an obtuse end.

Multifid, many cleft.

Multipartite, many parted.

Muricate, covered with sharp spines or prickles.

Nectariferous, bearing honey.

Nectary, 84, 89.

Nerves, parallel veins, 42.

Nodding, inclining to one side, partly drooping.

Nodi or *nodes*, 26.

Nodose, having many *nodi* or joints.

Nucamentaceous, producing nuts.

Ob, a particle, which when prefixed to any other term, denotes the inversion of the usual position; as obovate, obcordate, &c., i. e. inversely ovate, inversely cordate, &c.

Obconic, conic with the apex downward.

Obcordate, heart shaped with the point inward, or downward.

Oblong, longer than oval with the sides parallel.

Obovate, ovate, but inverted.

Obsolete, indistinct, appearing as if worn out.

Obtuse, blunt, rounded, not acute.

Ochroleucous, whitish yellow, cream-colour.

Opposite, standing directly against each other on opposite sides of the stem.

Orbicular, circular.

Oval, elliptical.

Ovarium or *ovary*, 110.

Ovate, egg shaped, oval with the lower end largest.

Ovoid, egg-like.

Ovule or *ovulum*, 122.

Palate, a large obtuse projection which closes the throat of a personate flower.

Palea, a term applied to the parts of the corol in Grasses.

Paleaceous, chaffy.

Palmate, hand shaped, deeply divided into spreading and somewhat equal segments.

Panduriform, contracted in the middle like a violin.

Panicle, 68.

Papilionaceous, 81.

Papillose, producing small glandular excrescences like nipples.

- Pappus**, the crown of the fruit of Compositæ and similar plants.
- Parasitic**, growing on another plant and drawing nourishment from it; as the Misseltree.
- Parietal**, 117.
- Parted**, deeply divided, more than cleft.
- Partial**, a term applied to small or constituent parts in distinction from general.
- Partition**, the dividing wall or dissepiment in seed vessels.
- Pectinate**, like the teeth of a comb, intermediate between fimbriate and pinnatifid.
- Pedicel**, small footstalk of a flower, 57.
- Peduncle**, the common footstalk of flowers, 56.
- Pellicle**, a very thin stratum or coat.
- Peltate**, having the stalk attached to some part of the surface or disk, and not to the margin.
- Pendulous**, hanging down.
- Pencilled**, ending like a painter's pencil or brush.
- Perennial**, 30 c.
- Perfect flower**, 91.
- Perfoliate**, surrounding the stem on all sides and perforated by it; it differs from connate, in not consisting of two leaves; *Ex. Eupatorium perfoliatum*.
- Perianth**, perianthium or perigonium, 74.
- Pericarp**, 133.
- Perigynous**, 94.
- Permanent**, see *persistent*.
- Persistent**, not falling off; those parts of a flower are persistent which remain till the fruit is ripe.
- Personate**, masked, having the mouth of the corolla closed by a prominent palate.
- Petal**, 77.
- Petaloid**, like a petal.
- Petiole**, 40.
- Phæogamous**, applied to all plants which have visible flowers containing stamens and pistils.
- Pilose**, hairy, with a stiff pubescence.
- Pinnæ**, the leaflets or divisions of a pinnate leaf.
- Pinnate**, a leaf is pinnate when the leaflets are arranged in two rows on the side of a common petiole.
- Pinnatifid**, cut in a pinnate manner; it differs from pinnate in consisting of a simple or continuous leaf, not compound.
- Pisiform**, formed like peas.
- Pistil**, 108.
- Pistillate**, having pistils, but no stamens.
- Plane**, flat.
- Plicate**, plaited, folded like a ruffle or fan.
- Plumose**, feathery, feather like.
- Plumula**, 174.
- Pod**, 154.
- Polygamous**, having some flowers which are perfect, and others which have stamens only, or pistils only.
- Polygynous**, having many styles.
- Polymorphous**, changeable, assuming a variety of forms.
- Polypetalous**, 77.
- Polyphyllous**, having many leaves, applied to the calyx.
- Polyscalous**, 76.
- Polyspermous**, having many seeds.
- Pome**, 158.
- Protracted**, extended forward.
- Pouch**, 154.
- Premorse or abrupt**, 11 d.
- Prickle**, 27.
- Prismatic**, having several parallel, flat sides.
- Procumbent**, lying on the ground.
- Proliferous**, an umbel or flower is said to be proliferous when it has smaller ones growing out of it.
- Pseudopinnate**, falsely or imperfectly pinnate, not resolving at any time into separate leaflets; as the Pea, Vetch, &c.
- Pubescent**, hairy or downy.
- Pulp**, the soft, juicy, cellular substance found in berries and similar fruits.
- Pulverulent**, dusty, composed of powder, or appearing as if covered with it.
- Punctate**, appearing as if pricked full of small holes, or dots.
- Punctiform**, resembling dots.
- Pungent**, sharp, acrid, prickling.
- Putamen**, a hard shell.
- Pyriform**, shaped like the fruit of a pear.

Quadrangular, four angled.

Quaternate, four together.

Quinate, five together.

Raceme, 62.

Racemose, flowering in racemes.

Rachis, that part of a culm which runs up through the ear of corn, and consequently the part that bears the flowers or fruit in other plants.

Radiant or *radiate*, often applied to a cluster or head of flowers when those of the circumference or ray are long and spreading, and unlike those of the disk.

Radical, growing immediately from the root.

Radicle, 175.

Ramose, branching.

Ray, the diverging florets or petals which form the outside of radiate flowers, cymes, and umbels.

Receptacle, 63.

Reclined, or *recline*, bending over, with the end inclining toward the ground.

Recurved, curved backwards.

Reflexed, bent backward, more than recurved.

Reniform, kidney shaped, heart shaped without the point.

Repand, slightly wavy or serpentine at the edge.

Resupinate, turned upside down; as the corol of *Trichostema*.

Reticulate, net like, having veins distributed like net work.

Retuse, having a slight sinus, or superficial notch in the end; less than emarginate.

Revolute, rolled backward or outward.

Rhomboidal, having four sides with unequal angles.

Ribbed, marked with parallel ridges or veins.

Ringent, irregular, with an upper and under lip. See *Labiata*.

Rooting, sending out lateral roots.

Rostrate, furnished with a beak.

Rotate, wheel shaped; applied to a monopetalous corol, the limb of which is flat and tube very short.

Rudiment, a term applied to an organ that is imperfectly developed.

Rufescent, becoming reddish-orange or rusty.

Rugose, wrinkled, leaves of Sage.

Rugulose, finely wrinkled.

Runcinate, having large teeth pointing backward; as the leaves of the *Dandelion*.

Saccate, bagged, having a bag or pouch; as in many petals.

Sagittate, arrow shaped, like the head of an arrow.

Salver shaped, see *Hypocrateriform*.

Samara, a seed vessel not opening by valves, having a winged or membranous appendage.

Sarmentose, running on the ground and striking roots from the joints; as the *strawberry*.

Scabrous, rough with little asperities.

Scale, any small processes resembling minute leaves; also the leaves of the involucre of *Compositæ*.

Scape, 58.

Scarious, having a thin membranous margin; the calyx scales of *Liatris scariosa*.

Scions, lateral shoots or offsets from the root.

Scrobiculate, excavated into little pits or hollows.

Secund, arranged on one side only, the same as unilateral.

Segment, a part or principal division of a leaf, calyx, or corolla.

Semibivalvular, half divided into two-valves.

Sepals, 76.

Septa, the partitions that divide the interior of the fruit.

Septiferous, bearing septa.

Sericeous, silky.

Serrate, notched like the teeth of a saw, the points tending upward.

Serrulate, minutely serrate.

Sessile, placed immediately on the stem without the intervention of a stalk.

Setaceous, bristle like.

Setæ, bristles.

Setiform, formed like a bristle.

Setosè, covered with bristles.

Sheath, a tubular or folded leafy portion inclosing the stem; see the leaves of Grasses.

Silicle, 154.

Siliqua, 154.

Siliqueose, having siliques.

Simple, not divided, branched, or compound.

Sinuate, having sinuses at the edge.

Sinus, a large rounded indentation or cavity.

Soboliferous, producing young plants from the root.

Sori, plural of *sorus*, small clusters of minute capsules on the back of the fronds of ferns.

Spadix, 64.

Spathe, a sheathing calyx opening lengthwise on one side, and consisting of one or more valves.

Spatulate or *spathulate*, obtuse or large at the end, and gradually tapering into a stalk at base.

Spike, 63.

Spikelet, a small spike; as in many of the Grasses.

Spindle shaped, see *Fusiform*.

Spine, 27.

Spinulose, covered with small spines.

Sporule, that part in cryptogamous plants which answers to the seed of other plants.

Spur, a sharp hollow projection from a flower, commonly the nectary.

Squamiform, scale shaped.

Squamose, scaly.

Squarrose or *squarrous*, ragged, having reflected or divergent scales.

Staminate, having stamens, but no pistil.

Standard, see *Banner*.

Stellate, like a star.

Stem, 13.

Stemless, 14.

Sterile, barren.

Stigma, 111.

Stipe, the stem of a fern or fungus; also the stem of the down of seeds, as in Dandelion; also a particular stalk of germs, seeds, &c., which is superadded to the pedicel.

Stipitate, having a short stalk.

Stipular, belonging to stipules.

Stipule, 47.

Stoloniferous, having scions or running shoots.

Striate, marked with fine parallel lines.

Strigose, bristly.

Strobile, 161.

Strophiolate, surrounded by protuberances.

Style, 112.

Sub, a particle prefixed to various terms, to imply the existence of a quality in a diminutive or inferior degree, as

Subacute, somewhat acute, less than acute, &c.

Subserrate, slightly serrate, &c.

Subsessile, nearly sessile.

Subulate, awl shaped, narrow, stiff and sharp pointed.

Succulent, juicy.

Sucker, a shoot from the root or lower part of the stem.

Suffruticose, somewhat shrubby, shrubby at base.

Sulcate, furrowed.

Suture, 137.

Tendrill, a filiform appendage of certain vines, which supports them by twining round other objects.

Terete, round, cylindrical.

Terminal, extreme, situated at the end.

Ternate, three together; as the leaves of common Clover.

Testa, 168.

Thorn, see *Spine*.

Throat, the passage into the tube of a corolla.

Thyrse, 69.

Tomentose, downy, covered with fine matted pubescence.

Toothed, divided so as to resemble teeth.

Torose, uneven; alternately elevated and depressed.

Torulose, slightly torose.

Torus, 83.

Trifid, three cleft.

Trifoliate, three leaved, see *Ternate*.

Trilobate, three lobed.

Trilocular, three celled.

Tripartite, three parted.

Triquetrous, having three sides or angles.

Truncate, having a square termination as if cut off.

Tuberculate, covered with knobs or tubercles.

Tuber, a solid fleshy knob, 11, g.

Tuberous, 11, g.

Tubular, shaped like a tube; in a compound flower, the florets which are not ligulate, are called tubular.

Tunicated, coated with concentric layers; as the Onion.

Turbinate, shaped like a top or pear.

Valves, the segments or parts of a seed vessel, into which it finally separates, 136; also the leaves which make up a glume or spathe.

Valvular, or *valved*, consisting of valves or seed cells.

Vaulted, arched over, with a concave covering.

Veined, having the divisions of the petiole irregularly branched on the under side of the leaf.

Ventricose, swelling, inflated.

Verrucose, warty, covered with little protuberances.

Vertical, perpendicular.

Verticillate, whorled, having leaves given off in a circle round the stem.

Versatile, swinging lightly on a stalk so as to be continually changing direction.

Vesicular, made of vesicles or little bladders.

Vesiculose, bladder like.

Villous, or *villose*, hairy, the hairs long and soft.

Virgate, long and slender, wand like.

Virose, poisonous, nauseous, and strong to the smell.

Viscid, or *viscous*, thick, glutinous, covered with adhesive juice.

Viviparous, producing a collateral offspring by means of bulbs.

Umbel, 66.

Umbelliferous, bearing umbels.

Umbilicate, marked with a central depression.

Unarmed, without prickles or thorns.

Uncinate, hooked, hook shaped.

Undulated, wavy, serpentine, gently rising and falling.

Unguiculate, inserted by a claw, 82.

Unilateral, growing all on one side, or with the flowers leaning to one side.

Urceolate, pitcher shaped, swelling in the middle and slightly contracted at top.

Utricle, or *utriculus*, 145.

Wedge shaped, formed like a wedge, and commonly rounded at the largest end.

Wheel shaped, see *Rotate*.

Winged, having the sides extended into a leafy expansion.

Wings, the two lateral petals of a papilionaceous flower, 81.

TABLE OF LINNÆAN ARTIFICIAL CLASSES AND ORDERS.

DIV. I. *Plants with conspicuous flowers.* PHANEROGAMIA.A. *Stamens and Pistils in the same flower.** *Stamens free and equal.*

CL. 1. MONANDRIA, with 1 stamen.	6. HEXANDRIA,	6 stamens.
2. DIANDRIA, 2 stamens.	7. HEPTANDRIA,	7 stamens.
3. TRIANDRIA, 3 stamens.	8. OCTANDRIA,	8 stamens.
4. TETRANDRIA, 4 stamens.	9. ENNEANDRIA,	9 stamens.
5. PENTANDRIA, 5 stamens.	10. DECANDRIA,	10 stamens.
*11. DODECANDRIA, 11 to 19 stamens.		
12. ICOSANDRIA, 20 or more stamens, perigynous or inserted on the calyx.		
13. POLYANDRIA, 20 or more stamens, hypogynous or inserted on the receptacle.		

ORDERS.—In the first 13 classes the orders depend solely on the number of pistils, and they are named—*Monogynia* 1. *Digynia* 2. *Trigynia* 3. *Tetragynia* 4. *Pentagynia* 5. *Hexagynia* 6. *Heptagynia* 7. *Octagynia* 8. *Enneagynia* 9. *Decagynia* 10. *Polygynia* more than 10.

** *Stamens free, unequal.*

14. DIDYNAMIA, 4 stamens, 2 longer than the others.

Two orders. 1. *Gymnospermia*, the seeds naked. 2. *Angiospermia*, the seeds inclosed in pericarp.

15. TETRADYNAMIA, 6 stamens, 4 longer than the others.

Two orders. 1. *Siliculosa*, fruit a silicle or pouch. 2. *Siliquosa*, fruit a long pod or silique.

*** *Filaments united.*

16. MONADELPHIA, filaments forming 1 set.

17. DIADELPHIA, filaments forming 2 sets.

*18. POLYADELPHIA, filaments forming more than 2 sets.

Orders depend upon the number of stamens, and have the same names as the first 13 classes.

**** *Anthers united.*

19. SYNGENESIA, 5 stamens. the anthers united (compound flowers.)

Five orders. 1. *Polygamia Equalis*, florets all perfect. 2. *P. Superflua*, disk florets perfect, rays pistiliferous. 3. *P. Frustranea*, disk perfect, rays neutral. 4. *P. Necessaria*, disk with stamens, rays with a pistil. 5. *P. Segregata*, with a perianth to each floret.

***** *Anthers united to the pistil.*

20. GYNANDRIA.

Orders named according to the number of stamens, as *Monandria*, &c.

B. *Stamens and Pistils in different flowers.*

21. MONOECIA, stamens and pistils on the same individual.

22. DIOECIA, stamens and pistils on different individuals.

Orders named according to the number of stamens, except where there is a union of the filaments; then named *Monadelphia*, &c.

*23. POLYGAMIA, perfect and unisexual flowers either on the same or different individuals.

Three orders. *Monoecia*. *Dioecia*. *Trioecia*.

DIV. II. *Plants with inconspicuous flowers.* CRYPTOGRAMIA.

24. CRYPTOGRAMIA, neither stamens nor pistils.

Six orders, viz. 1. *Filices*. 2. *Musci*. 3. *Algæ*. 4. *Fungi*. 5. *Hepaticæ*. 6. *Lichenes*.

* The classes marked thus, * viz. *Dodecandria*, *Polyadelphia*, and *Polygamia*, are generally discarded by the American botanists. They comprize, at least in our country, but few genera, and their characters are extremely variable. They are, however, retained by Muhlenberg and Bigelow, and very generally by the European authors.

SYNOPSIS OF GENERA, ACCORDING TO THE LINNÆAN SYSTEM.

MONANDRIA.

MONOGYNIA.

SALICORNIA. *Perianth* single, turbinate, fleshy, closed. *Stam.* 1—2. *Style* bifid. *Utricle* included. *Chenopodeæ*, p. 298.

HIPPURIS. *Cal.* adnate to the ovary; limb minute entire. *Cor.* none. *Style* received into a groove of the anther. *Nut* 1-seeded. *Haloragææ*, p. 123.

DIGYNIA.

CALLITRICHE. *Fl.* perfect or imperfect. *Bracts* 2, opposite, petaloid. *Cal.* (corol of authors,) inconspicuous. *Cor.* none. *Caps.* compressed, 2-celled, 4-seeded. *Haloragææ*, p. 123.

BLITUM. *Perianth* single, 3-cleft. *Seed* 1, covered by the calyx which becomes a berry. *Chenopodeæ*, p. 299.

DIANDRIA.

MONOGYNIA.

* *Flowers complete, inferior, 1-petalled, regular.*

LIGUSTRUM. *Cal.* minute, 4-toothed. *Cor.* with the tube short; the limb 4-cleft, spreading. *Berry* 1-celled 2—4-seeded. *Oleaceæ*, p. 231.

CHIONANTHUS. *Cal.* 4-parted; *Cor.* deeply 4-parted; segments long and linear. *Drupe* 1-seeded. *Nut* striate. *Oleaceæ*, p. 232.

** *Flowers complete, inferior, 1-petalled, irregular.*

VERONICA. *Cal.* 4- rarely 5-parted. *Cor.* subrotate, 4-lobed, unequal. *Caps.* 2-celled, obcordate. *Seeds* few. *Scrophularineæ*, p. 261.

LEPTANDRA. *Cal.* 5-parted; segments acuminate. *Cor.* tubular-campanulate; border 4-lobed, a little ringent. *Stam.* and at length the *pistil* much exserted. *Caps.* ovate, acuminate, 2-celled, many-seeded. *Scrophularineæ*, p. 262.

GRATIOLA. *Cal.* 5-parted, often with 2 bracts at the base. *Cor.* tubular, sub-bilabiate; upper lip emarginate; lower 3-lobed. *Stig.* 2-lobed. *Caps.* ovate, 2-celled, 2-valved. *Scrophularineæ*, p. 264.

LINDERNIA. *Cal.* 5-parted. *Cor.* tubular, ringent; upper lip short, emarginate; lower one 3-cleft, unequal. *Fil.* 4; the two longer, forked and sterile. *Caps.* 2-celled, 2-valved; dissepiment parallel with the valves. *Scrophularineæ*, p. 265.

HEMIANTHUS. *Cal.* tubular, cleft on the under side; border 4-toothed. *Cor.* with the upper lip obsolete; lower 3-parted; intermediate segment ligulate and truncate, much longer, closely incurved. *Stam.* 2. *Fil.* bifid; lateral fork antheriferous. *Caps.* 1-celled, 2-valved, many-seeded. *Scrophularineæ*, p. 267.

CATALPA. *Cal.* 2-parted. *Cor.* campanulate; tube ventricose; border 4-lobed, unequal. *Stam.* 2, fertile; 2—3 sterile. *Stig.* bilamellate. *Caps.* long, cylindric, 2-valved; dissepiment opposite to the valves. *Seed* membranaceously margined. *Bignoniaceæ*, p. 245.

JUSTICIA. *Cal.* 5-parted, often with 2 bracts. *Cor.* 2-lipped; upper

lip emarginate; lower 3-cleft. *Anth.* 1 or 2 on each filament. *Caps.* attenuated, 2-celled, 2-valved; dissepiment growing from the centre of each valve. *Acanthaceæ*, p. 285.

UTRICULARIA. *Cal.* 2-parted, nearly equal. *Cor.* personate, with the lower lip spurred at the base; *Fil.* incurved, bearing the anthers within the apex. *Stig.* 2-lipped. *Caps.* 1-celled. *Lentibulariæ*, p. 286.

PINGUICULA. *Cal.* 4—5-cleft. *Cor.* ringent, spurred at the base beneath. *Stam.* very short. *Stig.* 2-lipped. *Lentibulariæ*, p. 286.

CRYPTA. *Cal.* 2-leaved, inferior. *Cor.* 2—3, petalled, closed. *Style* almost wanting. *Stig.* obtuse. *Caps.* 2—3-celled, 2—3-valved; cells 4—5-seeded. *Elatinæ*, p. 55.

Obs. The remaining genera of this division have lipped corols, and 4 naked seeds. They form, with the plants of *Didynamia Gymnospermia*, (from which indeed they only differ in having two of the stamens abortive,) the Natural Order *Labiata*, p. 270.

*** *Flowers complete, superior.*

CIRCÆA. *Cal.* short; limb 2-parted. *Pet.* 2. *Stig.* emarginate. *Caps.* ovate, hispid, 2-celled, 2-valved, 2-seeded. *Circæaceæ*, p. 120.

**** *Flowers incomplete.*

LEMNA. Sterile and fertile *fl.* collateral. *Utricle* 1—5-seeded. *Pistiaceæ*, p. 383.

TRIANDRIA.

MONOGYNIA.

* *Flowers superior, complete.*

VALERIANELLA. *Cal.* with the limb toothed and persistent. *Cor.* not calcarate, regular, 5-lobed. *Fruit* 3-celled, submembranaceous, indehiscent, crowned by the limb of the calyx; 1 or 2 of the cells only fertile. *Valerianeæ*, p. 164.

VALERIANA. *Cal.* with the limb involute, at length evolved in a deciduous plumose pappus. *Cor.* with the tube obconic or cylindric, equal or gibbous at base; limb obtusely 5-cleft. *Fruit* indehiscent, 1-celled, 1-seeded. *Valerianeæ*, p. 164.

** *Flowers superior, incomplete.*

IRIS. *Perianth* 6-cleft; 3 of the segments larger and reflexed, the others erect. *Style* short or none. *Stig.* 3, petaloid, covering the stamens. *Irideæ*, p. 353.

LACHNANTHES. *Perianth* 6-parted; segments unequal. *Style* declining. *Stig.* minutely 3-lobed. *Caps.* 3-celled, truncated, many-seeded. *Hamodoraceæ*, p. 374.

*** *Flowers inferior, complete.*

COMMELINA. *Cal.* 3-leaved. *Cor.* 3-petalled. *Stam.* 6, 3—4 usually sterile and furnished with cruciform glands. *Caps.* 3-celled, 3-valved; one of the valves often abortive. *Commelineæ*, p. 375.

XYRIS. *Fl.* in an ovate cylindric head. *Cal.* glumaceous, cartilaginous, 3-valved. *Cor.* 3-petalled, equal. *Stig.* 3-cleft. *Xyrideæ*, p. 370.

**** *Flowers inferior, incomplete.*

SCHOLLERA. *Spathe* 1-flowered. *Cor.* tube very long ; limb deeply 6-parted. *Anth.* of 2 forms. *Caps.* 1-celled. *Pontederea*, p. 369.

HETERANTHERA. *Fl.* in a spathe. *Cor.* tube long and slender ; border 6-parted, equal. *Anth.* of 2 forms. *Caps.* 3-celled, many-seeded, opening at the angles ; dissepiment contrary. *Pontederea*, p. 369.

SISYRINCHIUM. *Spathe* 2-leaved. *Perianth* 6-cleft, flat, equal. *Stam.* cohering below. *Stig.* 3-cleft. *Iridea*, p. 353.

***** *Flowers glumaceous.*

Obs. All the genera of this division belong to the subclass *Glumaceæ*, and all except *Cenchrus*, *Spartina* and *Oryzopsis*, belong to the order *Cyperaceæ*, p. 420.

DIGYNIA.

Obs. All the genera of this order are proper grasses.—*Gramineæ*, p. 386. The family is so entirely natural, that it is unnecessary to repeat the generic descriptions.

TRIGYNIA.

MOLLUGO. *Cal.* 5-parted, coloured within. *Cor.* none. *Caps.* 3-celled, 3-valved, many-seeded. *Caryophylleæ*, p. 50.

LECHEA. *Cal.* 3-sepalled, with 3 outer bracts. *Pet.* 3, lanceolate. *Stig.* 3, scarcely distinct. *Caps.* 3-valved, with as many inner valves opposite the others. *Seeds* few. *Cistineæ*, p. 36.

PROSERPINACA. *Cal.* superior, with the tube adhering to the triquetrous ovary. *Carp.* 3, indehiscent, dry, concreted into a 3-sided fruit. *Haloragææ*, p. 121.

TETRANDRIA.

MONOGYNIA.

* *Flowers superior. Corol* 1-petalled.

CEPHALANTHUS. *Common cal.* none ; *proper* minute, angular, 4-cleft. *Cor.* tubular, slender, 4-cleft. *Style* much exerted. *Stig.* globose. *Caps.* 2-celled, 2-seeded. *Recept.* globose, hairy. *Rubiaceæ*, p. 160.

DIPSACUS. *Common cal.* many-leaved, foliaceous ; *proper* superior, 1-leaved. *Cor.* tubular, 4-lobed. *Seed* solitary. *Recept.* conic, chaffy. *Dipsacææ*, p. 164.

GALIUM. *Cal.* with the tube ovate-globose or oblong ; limb nearly wanting. *Cor.* rotate, 4-parted. *Seeds* 2, roundish, rarely oblong. *Rubiaceæ*, p. 161.

DIODIA. *Cal.* with the tube ovate or obovate, 2—4-toothed. *Cor.* funnel-form, 4-lobed. *Caps.* ovate, 2-celled, bipartite. *Rubiaceæ*, p. 161.

HEDYOTIS. *Cal.* 4-toothed or 4-parted. *Cor.* tubular, bearded at the throat, 4-parted. *Caps.* ovate, 2-celled, opening transversely at the top, many-seeded ; dissepiment contrary to the valves. *Rubiaceæ*, p. 160.

HOUSTONIA. *Cal.* 4-cleft. *Cor.* funnel-form, 4-cleft. *Caps.* 2-celled, 2-valved, many-seeded, opening transversely. *Gentianeæ*, p. 242.

MITCHELLA. *Fl.* by pairs upon the same germ. *Cal.* 4-toothed. *Cor.* funnel-form; tube cylindric; limb 4-parted, spreading, villous on the inner side. *Stam.* scarcely exerted. *Stig.* 4-cleft. *Ber.* by the union of 2 germs didymous, 4-seeded. *Rubiaceæ*, p. 160.

LINNÆA. *Cal.* with the tube ovate; limb 5-parted; segments lanceolate-subulate. *Cor.* turbinate, subcampanulate, 5-lobed. *Stam.* somewhat didynamous. *Stig.* globose. *Ber.* small, ovate, dry, 3-celled; (one cell only with a perfect seed.) *Caprifoliaceæ*, p. 159.

**** Flowers superior. Corol many-petalled, or none.**

CORNUS. *Cal.* 4-toothed. *Pet.* 4, oblong. *Drupe* with a 2-celled nut. *Corneæ*, p. 153.

ISNARDIA. *Cal.* 4-parted, persistent. *Cor.* 4-petalled or none. *Caps.* 4-sided, 4-celled, many-seeded. *Onagraræ*, p. 119.

SANGUISORBA. *Cal.* 4-cleft, with 2 scales at base externally. *Pet.* none. *Carp.* 2, included within the calyx, crowned by a style with a fimbriate apex, converted into dry indehiscent 1-seeded acines. *Sanguisorbææ*, p. 114.

***** Flowers inferior. Corol 1-petalled.**

PLANTAGO. *Cal.* 4-cleft. *Cor.* 4-cleft; border reflected. *Stam.* mostly exerted, very long. *Caps.* 2-celled, opening transversely. *Plantagineæ*, p. 292.

CENTAURELLA. *Cal.* 4-parted, appressed. *Cor.* subcampanulate, 4-parted; segments somewhat erect. *Stig.* thick, glandular, and somewhat 2-cleft. *Caps.* 1-celled, 2-valved, many-seeded, surrounded by the persistent calyx and corol. *Gentianeæ*, p. 243.

EXACUM. *Cal.* deeply 4-parted. *Cor.* 4-cleft; tube globose. *Caps.* bisulcate, 2-celled, many-seeded. *Gentianeæ*, p. 242.

SWERTIA. *Cal.* flat, 4—5-parted. *Cor.* 4 or 5-parted; tube very short; border spreading, with 2 nectariferous ciliate pores at the base of each. *Style* short. *Stig.* 2. *Caps.* 1-celled, 2-valved. *Gentianeæ*, p. 240.

FRASERA. *Cal.* deeply 4-parted. *Cor.* 4-parted, spreading; segments oval with a bearded orbicular gland in the middle of each. *Caps.* compressed, partly margined, 1-celled. *Seeds* few, large, imbricate, with a membranaceous margin. *Gentianeæ*, p. 241.

OBOLARIA. *Cal.* 2-parted, resembling bracts. *Cor.* campanulate 4-cleft; segments entire, sometimes crenulate. *Stam.* proceeding from the cleft of the corol, somewhat didynamous. *Stig.* emarginate. *Caps.* ovate, 1-celled, 2-valved, many-seeded. *Gentianeæ*, p. 244.

****** Flowers inferior. Corol 4—5-petalled.**

AMMANNIA. *Cal.* campanulate, 8-toothed. *Cor.* 4-petalled or none, inserted upon the calyx. *Caps.* 4-celled, many-seeded. *Salicariææ*, p. 125.

PTELEA. *Cal.* 4—5-parted. *Pet.* 4—5, spreading. *Stig.* 2. *Samaræ* compressed, orbicular, 2-celled, 2-seeded, with a broad and circular margin. *Zanthoxyleææ*, p. 71.

***** *Flowers inferior. Corol wanting.*

RIVINA. *Cal.* 4-parted, persistent. *Pet.* none. *Ber.* 1-seeded. *Seed* lenticiform, scabrous. (*Stam.* 4, 8 and 12.) *Phytolacææ*, p. 300.

STYRANDRA. *Perianth* 4-parted, spreading. *Stam.* divergent. *Ber.* 2-celled. *Smilacææ*, p. 357.

SYMPLOCARPUS. *Spathe* ventricose-ovate, acuminate. *Spad.* subglobose, covered with perfect flowers. *Cal.* deeply 4-parted, persistent; segments cucullate, truncate, becoming thick and spongy. *Pet.* none. *Style* pyramidal, 4-sided. *Stig.* simple, minute. *Seeds* numerous, immersed in the spadix. *Aroidææ*, p. 382.

ALCHEMILLA. *Cal.* 8-cleft; segments spreading, alternately smaller. *Cor.* none. *Style* lateral, from the base of the germ. *Fruit* covered by the calyx. *Sanguisorbeææ*, p. 114.

DIGYNIA.

HAMAMELIS. *Cal.* 4-lobed, with 2—3 scales at the base. *Pet.* 4, long, ligulate. *Caps.* coriaceous, 2-celled, 2-valved at the top. *Seed* 1 in each cell. *Hamamelideææ*, p. 152.

TETRAGYNIA.

ILEX. *Cal.* 4—5-toothed, persistent. *Cor.* 4—5-parted. *Stam.* 4—5. *Stig.* 4—5, subsessile. *Ber.* 4—5-seeded. *Illicineææ*, p. 230.

SAGINA. *Cal.* 4—5-parted. *Pet.* 4—5, or none. *Caps.* 4—5-valved, 1-celled, many-seeded. *Caryophylleææ*, p. 49.

TILLÆA. *Cal.* 3—4-parted. *Cor.* 3—4-petalled, equal. *Carp.* 3 or 4, two-seeded. *Crassulacææ*, p. 133.

RUPPIA. *Fl.* on a spadix. *Cal.* and *cor.* none. *Seeds*, (*Drupe*s,) 4, pedicellate. *Fluvialesææ*, p. 385.

POTAMOGETON. *Fl.* on a spadix. *Cal.* 4-leaved. *Cor.* none. *Anth.* sessile. *Nuts* 4, 1-seeded, sessile. *Fluvialesææ*, p. 385.

PENTANDRIA.

MONOGYNIA.

* *Flowers 1-petalled, inferior, with 4 naked seeds or nuts.*

OBS. The genera of this division constitute the Nat. Ord. *Boraginææ*, p. 251.

** *Flowers 1-petalled, inferior. Seeds in a capsule.*

(*Capsule 1-celled.*)

ANAGALLIS. *Cal.* 5-parted. *Cor.* rotate, 5-lobed. *Fil.* hairy. *Caps.* globose, bursting transversely all round. *Primulacææ*, p. 291.

LYSIMACHIA. *Cal.* 5-parted. *Cor.* rotate, 5-cleft. *Caps.* 10-valved. *Primulacææ*, p. 290.

PRIMULA. *Cal.* tubular, 5-toothed. *Cor.* salver-form; tube cylindrical; orifice naked. *Stig.* globose. *Caps.* opening with 10 teeth. *Primulacææ*, p. 288.

DODECANTHEON. *Cal.* 5-cleft. *Cor.* rotate, reflexed, 5-cleft. *Stam.* seated in the tube. *Caps.* oblong, opening at the apex. *Primulacææ*, p. 288.

MENYANTHES. *Cal.* 5-parted. *Cor.* funnel-form; limb spread-

ing, 5-lobed, equal, hairy within. *Stig.* capitate. *Caps.* with the axis of the valves seminiferous. *Gentianeæ*, p. 244.

VILLARSA. *Cal.* 5-parted. *Cor.* rotate; limb spreading, 5-lobed, ciliate on the margin. *Stig.* 2-lobed. *Glands* 5, alternating with the stamens. *Caps.* 2-valved, many-seeded. *Gentianeæ*, p. 243.

HOTTONIA. *Cal.* 5-parted. *Cor.* salver-form, 5-lobed. *Stam.* seated on the tube of the corol. *Stig.* globose. *Caps.* globose, acuminate. *Primulaceæ*, p. 289.

SABBATIA. *Cal.* 5—12-parted. *Cor.* rotate, 5—12-parted. *Anth.* at length revolute. *Stig.* 2, spiral. *Caps.* 2-valved, many-seeded. *Gentianeæ*, p. 241.

ERYTHRÆA. *Cal.* 5-cleft. *Cor.* funnel-form; limb short, 5-cleft, spreading. *Anth.* after flowering spiral. *Style* erect. *Stig.* 2, roundish. *Caps.* linear. *Gentianeæ*, p. 242.

HYDROPHYLLUM. *Cal.* 5-parted. *Cor.* campanulate, 5-cleft, with 5 longitudinal melliferous grooves inside. *Stam.* exsert; filaments bearded in the middle. *Stig.* bifid. *Caps.* globose, 2-valved. *Hydrophyllææ*, p. 255.

NEMOPHILA. *Cal.* 10-parted; alternate lobes reflexed. *Cor.* subcampanulate, 5-lobed; the lobes emarginate, with margined nectariferous cavities at base. *Stam.* shorter than the corol; *fil.* naked. *Style* 2-cleft. *Caps.* fleshy, 2-valved, 4-seeded. *Hydrophyllææ*, p. 255.

(*Capsules* 2—3-celled.)

PHACELIA. *Cal.* 5-parted. *Cor.* subcampanulate, 5-cleft, with 5 longitudinal margined grooves within. *Stam.* exsert. *Style* filiform. *Stig.* 2. *Caps.* 2-celled, 2-valved, 4-seeded. *Hydrophyllææ*, p. 256.

SPIGELIA. *Cal.* 5-parted. *Cor.* funnel-form; border 5-cleft, equal. *Anth.* convergent. *Caps.* didymous, 2-celled, 4-valved, many-seeded. *Spigeliaceæ*, p. 238.

NICOTIANA. *Cal.* urceolate, 5-cleft. *Cor.* funnel-form, 5-cleft. *Stig.* emarginate. *Caps.* 2-celled, 2-valved. *Solanææ*, p. 258.

VERBASCUM. *Cal.* 5-parted. *Cor.* rotate, 5-lobed, unequal. *Stam.* declined, often hairy. *Caps.* 2-valved, ovate or globose. *Solanææ*, p. 259.

HYOSCYAMUS. *Cal.* tubular, 5-cleft. *Cor.* funnel-form, irregular; lobes obtuse. *Stig.* capitate. *Caps.* ovate, covered with a lid. *Solanææ*, p. 259.

CONVOLVULUS. *Cal.* 5-parted, naked or with 2 bracts at base. *Cor.* funnel-form or campanulate, plicate. *Stig.* capitate, lobed or divided. *Caps.* valved, 1—4-celled. *Convolvulaceæ*, p. 248.

(*Capsules* 3—5-celled.)

PHLOX. *Cal.* deeply 5-cleft. *Cor.* salver-form; border 5-lobed, flat. *Stam.* inserted into the tube of the corol above the middle, very unequal. *Caps.* roundish, 3-celled; cells 1-seeded. *Polemoniaceæ*, p. 246.

POLEMONIUM. *Cal.* campanulate, 5-cleft. *Cor.* rotate, 5-parted. *Stam.* inserted upon the five teeth or valves which close the orifice of corol. *Polemoniaceæ*, p. 247.

DIAPENSIA. *Cal.* 5-parted, subtended by 3 bracts. *Cor.* salver-form; border 5-cleft, flat. *Stam.* inserted into the tube and alternating with

the segments of the corol. *Caps.* 3-celled, 3-valved, many-seeded. *Hydroleaceæ*, p. 250.

AZALEA. *Cal.* 5-parted. *Cor.* short, campanulate, 5-cleft. *Stam.* equal, shorter than the corol. *Anth.* opening longitudinally. *Caps.* 5-celled, 5-valved, opening at the top. *Ericææ*, p. 222.

*** *Flowers 1-petalled, inferior. Fruit a berry.*

PHYSALIS. *Cal.* 5-cleft. *Cor.* rotate, 5-cleft. *Stam.* connivent. *Ber.* globose, covered by the inflexed calyx. *Solanææ*, p. 257.

SOLANUM. *Cal.* 5-cleft. *Cor.* rotate, 5-cleft, spreading. *Anth.* opening with two pores at the top. *Ber.* subglobose, 2—4-celled. *Solanææ*, p. 257.

NICANDRA. *Cal.* 5-parted, 5-angled, the angles compressed, segments sagittate. *Cor.* campanulate. *Stam.* incurved. *Ber.* 3—5-celled, covered by the calyx. *Solanææ*, p. 258.

**** *Flowers 1-petalled, superior. Fruit a capsule.*

CAMPANULA. *Cal.* mostly 5-cleft. *Cor.* campanulate, the base closed with 5 staminiferous valves. *Stig.* 3—5-cleft. *Caps.* 3—5-celled, opening laterally. *Campanulaceæ*, p. 213.

LOBELIA. *Cal.* 5-cleft. *Cor.* 5-parted, irregular, cleft on the upper side to near the base. *Stam.* united into a tube. *Stig.* 2-lobed. *Caps.* 2—3-celled. *Lobeliaceæ*, p. 214.

DIÉRVILLA. *Cal.* 5-cleft, bibracteate at the base. *Cor.* funnel-form, 5-cleft, spreading, much longer than the calyx. *Stig.* capitate. *Caps.* oblong, naked, acute, 1-celled, many-seeded. *Caprifoliaceæ*, p. 157.

***** *Flowers 1-petalled, superior. Fruit a berry.*

LONICERA. *Cal.* 5-toothed. *Cor.* tubular, campanulate or funnel-form, 5-cleft, often irregularly. *Stig.* capitate. *Ber.* 3-celled, few seeded. *Caprifoliaceæ*, p. 157.

SYMPHORIA. *Cal.* minute, 4—5-toothed. *Cor.* funnel-form, subequally 4—5-lobed. *Stig.* subglobose. *Ber.* crowned by the calyx, 4-celled, 4-seeded; 2 cells sometimes abortive. *Caprifoliaceæ*, p. 159.

TRIOSTEUM. *Cal.* 5-cleft; lobes linear-lanceolate, nearly as long as the corol. *Cor.* tubular, 5-lobed, gibbous at base. *Stig.* capitate. *Ber.* 3-celled, 3-seeded, crowned by the calyx. *Caprifoliaceæ*, p. 157.

***** *Flowers 4—6-petalled, inferior. Fruit a capsule.*

ITEA. *Cal.* 5-cleft, campanulate. *Pet.* 5, linear, reflexed, spreading, inserted into the calyx. *Stig.* capitate, 2-lobed. *Caps.* 2-celled, 2-valved, many-seeded. *Saxifrageæ*, p. 139.

IMPATIENS. *Sep.* 5, the lower one spurred. *Cor.* 4-petalled, irregular; the 2 inner petals unequally bilobed. *Stig.* 5, united. *Caps.* prismatic-terete, elongated, 5-valved. *Balsamineæ*, p. 68.

VIOLA. *Sep.* 5, auricled at their base. *Pet.* unequal, lower one spurred. *Anth.* cohering at the top. *Caps.* 1-celled, 3-valved. *Violaceæ*, p. 37.

SOLEA. *Sep.* not auricled at base, decurrent into a pedicel. *Pet.* nearly equal; the lower a little larger and somewhat gibbous at base. *Fil.* with short broadish claws at base. *Violaceæ*, p. 41.

CLAYTONIA. *Cal.* 2-leaved or 2-parted. *Pet.* 5, obcordate or obovate,

unguiculate. *Style* 3-cleft. *Caps.* 1-celled, 3-valved; 3—5-seeded. *Portulacæ*, p. 130.

CEANOTHUS. *Cal.* 5-cleft, campanulate. *Pet.* 5, saccate and arched, with long claws. *Stig.* 3. *Caps.* 3-celled, 3-seeded, 3-parted, opening on the inner side. *Rhamnæ*, p. 74.

EVONYMUS. *Cal.* 4—6-lobed, flat, covered at base by a peltate disk. *Pet.* 4—6, spreading, inserted into the disk. *Caps.* 3—5-celled, 3—5-angled; cells 1—4-seeded. *Celastrinæ*, p. 71.

CELASTRUS. *Cal.* minute, 5-lobed. *Pet.* 5, unguiculate. *Ovary* with 10 striæ, immersed in the disk. *Caps.* 2—3-valved; valves septiferous in the centre. *Seed* 1, covered with a large fleshy aril. *Celastrinæ*, p. 72.

***** *Flowers* 4—5-pétalled, inferior. *Fruit* a berry.

VITIS. *Cal.* about 5-toothed. *Pet.* 5, cohering at the top, deciduous. *Stig.* capitate, sessile. *Ber.* 2-celled, 4-seeded; cells and seeds often abortive. *Ampelidæ*, p. 66.

AMPELOPSIS. *Cal.* nearly entire. *Pet.* 5. *Stig.* capitate. *Ovary* not immersed in the disk, 2—4-seeded. *Ampelidæ*, p. 65.

RHAMNUS. *Cal.* urceolate, 4—5-cleft. *Pet.* alternating with the lobes of the calyx, or none. *Stig.* 2—4-cleft. *Ber.* 2—4-celled. *Rhamnæ*, p. 73.

***** *Flowers* 5-pétalled, superior.

RIBES. *Cal.* campanulate, 5-cleft. *Style* 1—4-cleft. *Ber.* 1-celled, many-seeded. *Grossulacæ*, p. 135.

***** *Flowers* incomplete.

HAMILTONIA. Polygamous. *Perianth* turbinate-campanulate, 5-cleft. *Stig.* 2—3. *Germ* immersed in the 5-toothed glandulous disk. *Drupe* 1-seeded, inclosed in the adhering base of the calyx. *Santalacæ*, p. 307.

THESIUM. *Perianth* 4—5-cleft. *Stam.* 4—5, villous externally. *Nut* 1-seeded, covered by the persistent perianth. *Santalacæ*, p. 307.

GLAUX. *Cal.* campanulate, 5-lobed, coloured. *Cor.* none. *Caps.* globose, 5-valved, 5-seeded, surrounded by the calyx. *Primulacæ*, p. 289.

ANYCHIA. *Cal.* 5-parted; segments connivent, subsaccate, callous at the top. *Cor.* none. *Fil.* 3—5, distinct. *Stig.* 2, sub-capitate. *Caps.* indehiscent, 1-seeded, surrounded by the calyx. *Illecebræ*, p. 131.

DIGYNIA.

* *Flowers* inferior. *Corol* 1-pétalled.

APOCYNUM. *Cal.* very small, 5-cleft, persistent. *Cor.* campanulate; border with 5 short spreading or revolute lobes; the base furnished with 5 glandular teeth alternating with the stamens. *Anth.* sagittate, connivent, cohering to the stigma by the middle. *Follicles* long, distinct. *Apocynæ*, p. 233.

PERIPLOCA. *Cal.* 5-cleft. *Cor.* rotate, flat, 5-parted; orifice surrounded with a 5-cleft crown, terminating in 5 filiform awns. *Anth.* cohering, bearded on the back. *Follicles* 2, smooth, divaricate. *Asclepiadæ*, p. 238.

GONOLOBUS. *Cor.* rotate, 5-parted. *Stamineal crown*, (nectary,)

scutelliform, lobed. *Anth.* opening transversely, terminated by a membrane. *Pollinia* (masses of pollen) 5-pairs, not separated into grains. *Stig.* depressed. *Follicles* 2, ventricose. *Asclepiadeæ*, p. 237.

ASCLEPIAS. *Cal.* small, 5-parted. *Cor.* 5-parted, mostly reflexed. *Stamineal crown* 5-leaved, concave, erect with a subulate process at the base of each. *Stig.* with 5 angles, opening by longitudinal chinks. *Pollinia* 5 distinct pairs. *Follicles* 2, ventricose. *Asclepiadeæ*, p. 235.

GENTIANA. *Cal.* 4—5-cleft. *Cor.* bell- or funnel-form, tubular at the base, with the orifice naked. *Stam.* 4—5, included. *Stig.* 2-lobed. *Caps.* 1-celled, 2-valved. *Gentianeæ*, p. 239.

CUSCUTA. *Cal.* 4—5-cleft. *Cor.* globose-urceolate; limb 4—5-lobed. *Caps.* 2-celled, opening all round transversely; cells 2-seeded. *Convolvulaceæ*, p. 249.

** *Flowers 5-petalled, inferior.*

HEUCHERA. *Cal.* 5-cleft, persistent. *Pet.* 5, inserted on the calyx. *Caps.* with 2 beaks, 1-celled, many-seed. *Saxifrageæ*, p. 139.

*** *Flowers 5-petalled, superior.*

PANAX. *Fl.* polygamous, umbelled. *Cal.* obsoletely 5-toothed. *Pet.* 5. *Styles* 2—3, short. *Fruit* fleshy, compressed, orbicular or didymous, 2-celled. *Araliaceæ*, p. 151.

**** *Flowers incomplete.*

ATRIplex. Polygamous. PERFECT FL. *Perianth* 5-parted. *Fruit* depressed. FEMALE FL. *Perianth* 2-parted. *Stam.* none. *Chenopodeæ*, p. 296.

CHENOPODIUM. *Perianth* inferior, 5-cleft, persistent, partly covering the fruit. *Chenopodeæ*, p. 295.

SALSOLA. *Perianth* inferior, 5-cleft, persistent, enveloping the fruit with its base and crowning it with its broad scariosse limb. *Embryo* spiral. *Chenopodeæ*, p. 298.

ULMUS. *Perianth* inferior, campanulate, 4—5-cleft. *Fruit* compressed, with a broad membranaceous border. *Ulmaceæ*, p. 333.

CELTIS. Perfect or polygamous. *Perianth* inferior, 5-lobed. *Drupe* globose, 1-seeded. *Ulmaceæ*, p. 334.

***** *Flowers 5-petalled, superior, 2-seeded.*

Obs. The genera of this division form the Natural Order *Umbelliferae*, p. 139.

TRIGYNIA.

* *Flowers superior.*

VIBURNUM. *Cal.* with the limb small, 5-toothed and persistent. *Cor.* rotate subcampanulate or tubular, 5-lobed. *Ber.* ovate or globose, 1-seeded, crowned by the teeth of the calyx. *Caprifoliaceæ*, p. 155.

** *Flowers inferior.*

RHUS. *Cal.* small, 5-parted. *Pet.* 5, ovate, spreading. *Drupe* nearly dry, with one bony seed. *Anacardiaceæ*, p. 75.

STAPHYLEA. *Cal.* 5-parted, covered at base by an urceolate disk; lobes oblong, concave, coloured. *Pet.* 5, alternate with the sepals. *Caps.* 2—3-celled; cells membranaceous, inflated, united at base or throughout their whole length. *Staphyleaceæ*, p. 73.

TETRAGYNIA.

PARNASSIA. *Cal.* 5-sepalled. *Pet.* 5. *Scales* 5, terminating in glandular bristles at the apex. *Caps.* 1-celled, 4-valved. *Seeds* arillate. *Droseraceæ*, p. 43.

NEMOPANTHER. *Fl.* by abortion dioecious or polygamous. *Cal.* scarcely conspicuous. *Pet.* 5, distinct, oblong-linear, deciduous. *Stig.* 3—4, sessile. *Ber.* subglobose, 3—4-celled, 3—4-seeded. *Illici-
neæ*, p. 230.

PENTAGYNIA.

ARALIA. *Cal.* 5-toothed, or entire, superior. *Pet.* 5. *Ber.* 5—10, seeded. *Fl.* in umbels. *Araliaceæ*, p. 151.

STATICE. *Cal.* funnel-form, scarious, plaited. *Pet.* 5. *Pericarp* indehiscent. *Plumbagineæ*, p. 292.

LINUM. *Cal.* 5-parted, persistent. *Pet.* 5, unguiculate. *Caps.* subglobose, 10-valved, 10-celled. *Seed* solitary, ovate, compressed. *Lineæ*, p. 56.

SIBBALDIA. *Cal.* 10-cleft, with the alternate segments narrower. *Pet.* 5, minute. *Styles* proceeding laterally from the germ. *Seeds* 5, clustered in the bottom of the calyx. *Rosaceæ*, p. 108.

DROSERA. *Cal.* deeply 5-cleft. *Pet.* 5. *Caps.* superior, 3-celled, 3—5-valved, many-seeded. *Droseraceæ*, p. 42.

POLYGYNIA.

ZANTHORIZA. *Cal.* deciduous, 5-sepalled. *Pet.* 5. *Caps.* 2—3-seeded, by abortion 1-seeded. *Ranunculaceæ*, p. 14.

HEXANDRIA.

MONOGYNIA.

* *Flowers complete, having a calyx and corol.*

TRADESCANTIA. *Cal.* 3-leaved. *Pet.* 3. *Fil.* villous. *Caps.* superior, 3-celled, many-seeded. *Commelineæ*, p. 376.

BERBERIS. *Cal.* inferior, 6-sepalled. *Pet.* 6, with 2 glands upon their claws. *Ber.* 2—3-seeded. *Berberideæ*, p. 17.

LEONTICE. *Cal.* 6-sepalled, naked without. *Pet.* 6, bearing a scale at the base. *Caps.* 2—4-seeded. *Seeds* globose, inserted into the bottom of the capsule. *Berberideæ*, p. 17.

PRINOS. *Cal.* minute, 6-cleft. *Cor.* 6-parted. *Ber.* 6-seeded. *Illici-
neæ*, p. 230.

FLÆRKIA. *Cal.* 3-sepalled. *Pet.* 3, shorter than the sepals. *Style* bifid. *Seeds* 2 or 3, membranaceously coated, superior. *Hydropetti-
deæ*, p. 19.

** *Flowers issuing from a spathe.*

AMARYLLIS. *Perianth* superior, 6-parted, petaloid, irregular. *Fil.* arising from the orifice of the tube, declined or straight, unequal. *Amaryllideæ*, p. 354.

ALLIUM. *Perianth* inferior, 6-parted, generally spreading. *Fl.* in crowded umbels, arising from a 2-leaved spathe. *Asphodeleæ*, p. 363.

HYPOXIS. *Spathe* 2-valved. *Perianth* superior, 6-parted, persistent.

Caps. elongated, narrowed at the base, 3-celled, many-seeded. *Seeds* roundish, naked. *Hypoxideæ*, p. 354.

PONTEDERIA. *Perianth* inferior, 6-parted, 2-lipped; under side of the tube with 3 longitudinal perforations. *Stem.* unequally inserted; 3 of them upon the summit of the tube. *Caps.* muricate, 1-seeded. *Pontederææ*, p. 368.

*** *Flowers with a single corol-like perianth.*

ALETRIS. *Perianth* tubular-ovate, 6-cleft, wrinkled. *Stam.* inserted upon the orifice. *Style* 3-sided, 3-parted. *Caps.* half-superior, 3-celled, many-seeded. *Asphodeleæ*, p. 364.

LOPHIOLA. *Perianth* 6-parted; woolly, bearded inside. *Anth.* erect. *Fil.* naked. *Stig.* simple. *Caps.* opening at the summit. *Hemodoraceæ*, p. 374.

AGAVE. *Perianth* superior, tubular, funnel-form, 6-parted. *Stam.* longer than the corol, erect. *Caps.* triangular, many-seeded. *Bromeliaceæ*, p. 375.

HEMEROCALLIS. *Perianth* large, persistent, campanulate, 6-cleft. *Stam.* declined. *Stig.* somewhat villous. *Asphodeleæ*, p. 362.

ORNITHOGALUM. *Perianth* 6-parted, spreading above. *Fil.* dilated at the base. *Asphodeleæ*, p. 362.

NARTHECIUM. *Perianth* 6-parted, coloured. *Fil.* hairy. *Caps.* prismatic, 3-celled. *Seed* appendaged at each extremity. *Juncea*, p. 374.

ASPARAGUS. *Perianth* inferior, 6-parted. *Style* very short. *Stig.* 3. *Ber.* 3-celled; cells 2-seeded. *Asphodeleæ*, p. 363.

ERYTHRONIUM. *Perianth* campanulate, 6-parted; segments reflexed; the 3 inner ones usually with a callous tooth on each side near the base, and a nectariferous pore. *Caps.* superior, roundish, somewhat stiped. *Liliaceæ*, p. 365.

LILIUM. *Perianth* campanulate, deeply 6-parted; segments mostly reflexed, marked with a longitudinal nectariferous line. *Stig.* entire. *Caps.* superior, 3-sided. *Liliaceæ*, p. 364.

UVULARIA. *Perianth* inferior, 6-parted, erect; segments with a nectariferous cavity at base. *Fil.* very short, growing to the anthers. *Stig.* reflexed. *Caps.* 3-sided, 3-celled, 3-valved. *Seeds* many, subglobose, arillate at the hilum. *Smilaceæ*, p. 361.

SMILACINA. *Perianth* 6-parted, spreading. *Stam.* attached to the base of the segments. *Ber.* globose, 3-celled. *Smilaceæ*, p. 357.

CLINTONIA. *Perianth* 6-parted, bell-form. *Stam.* inserted at the base. *Style* compressed. *Stig.* 2-lobed, compressed. *Ber.* 2-celled; cells many-seeded. *Smilaceæ*, p. 358.

POLYGONATUM. *Perianth* 6-cleft, cylindrical. *Stam.* inserted on the upper part of the tube. *Ber.* 3-celled; cells 2-seeded. *Smilaceæ*, p. 358.

STREPTOPUS. *Perianth* 6-parted; segments with a nectariferous pore at base. *Anth.* longer than the filaments. *Stig.* very short. *Ber.* subglobose, smooth, 3-celled. *Seeds* few. *Smilaceæ*, p. 359.

**** *Flowers with a single calyx-like perianth, not spathed.*

ORONTIUM. *Spad.* cylindric, crowded with flowers. *Perianth* 6-petalled, naked. *Style* and *stigma* scarcely any. *Caps.* bladder-like, 1-seeded. *Aroideæ*, p. 331.

ACORUS. *Spad.* cylindric, covered with flowers. *Perianth* glumaceous, 6-petalled, naked. *Stig.* sessile, very minute. *Caps.* 3-celled, 3-angled. *Aroidea*, p. 381.

JUNCUS. *Perianth* inferior, glumaceous, 6-parted. *Caps.* 3-celled, 3-valved. *Seeds* many. *Junceæ*, p. 371.

LUZULA. *Perianth* 6-parted, glumaceous. *Caps.* superior, 3-celled, 3-valved; cells 1-seeded. *Junceæ*, p. 373.

TRIGYNIA.

MELANTHIUM. Polygamous. *Perianth* rotate, 6-parted; segments with claws and 2 glands at the base of each; claws staminiferous. *Caps.* subovate, 3-celled; apex partly trifid. *Seeds* many, membranaceously winged. *Melanthaceæ*, p. 366.

VERATRUM. Polygamous. *Perianth* 6-parted, spreading; segments sessile, without glands. *Stam.* inserted upon the receptacle. *Caps.* oblong, 2-valved, many-seeded. *Melanthaceæ*, p. 368.

HELONIAS. *Perianth* 6-parted, spreading, without glands. *Styles* 3, distinct. *Caps.* 3-celled, 3-horned; cells few-seeded. *Melanthaceæ*, p. 367.

XEROPHYLLUM. *Perianth* subrotate, deeply 6-parted. *Fil.* contiguous at base. *Stig.* 3, revolute, partly united below. *Caps.* subglobose, 3-celled; cells 2-seeded, opening at the top. *Melanthaceæ*, p. 367.

TOFIELDIA. *Perianth* 6-parted, with a small 3-parted involucre. *Caps.* 3—6-celled; cells many-seeded. *Melanthaceæ*, p. 366.

SCHEUCHZERIA. *Perianth* 6-parted. *Anth.* linear. *Stig.* sessile, lateral. *Caps.* inflated, 2-valved, 1—2-seeded. *Juncagineæ*, p. 379.

TRIGLOCHIN. *Perianth* of 6 deciduous leaves, 3 inserted above the rest. *Stam.* very short. *Caps.* 3—6, united by a longitudinal receptacle. *Juncagineæ*, p. 378.

MEDEOLA. *Perianth* 6-parted, revolute. *Stig.* 3, divaricate, united at the base. *Ber.* 3-celled; cells 3—6-seeded. *Smilaceæ*, p. 360.

TRILLIUM. *Perianth* 6-parted; 3 outer segments resembling a calyx; 3 inner petaloid. *Stig.* 3, sessile. *Ber.* superior, 3-celled; cells many-seeded. *Smilaceæ*, p. 360.

RUMEX. *Perianth* 6-leaved. *Nut* triquetrous, covered by the 3 inner valviform leaves of the perianth. *Stig.* many-cleft. *Polygoneæ*, p. 303.

TETRAGYNIA.

SAURURUS. *Fl.* in an ament or crowded spike. *Scales* 1-flowered. *Cor.* none. *Anth.* adnate to the filaments. *Caps.* 4, each 1 or rarely 2-seeded. *Saurureæ*, p. 317.

POLYGYNIA.

ALISMA. *Cal.* 3-leaved. *Cor.* 3-petalled. *Caps.* many, clustered, distinct, 1-seeded, not opening. *Alismaceæ*, p. 376.

HEPTANDRIA.

MONOGYNIA.

TRIENTALIS. *Cal.* 7-parted. *Cor.* 7-parted, regular and flat. *Ber.* dry, opening at the suture, many-seeded. *Primulaceæ*, p. 289.

ÆSCULUS. *Cal.* campanulate. *Pet.* 4—5, expanded. *Fil.* recurved backwards. *Caps.* echinate. *Hippocastaneæ*, p. 65.

OCTANDRIA.

MONOGYNIA.

* *Flowers superior.*

RHEXIA. *Cal.* ventricose-ovate at base; limb 4-cleft. *Pet.* 4, obovate. *Caps.* included in the calyx, 4-celled. *Seeds* numerous, cochleate. *Melastomaceæ*, p. 127.

OENOTHERA. *Cal.* 4-sepalled; sepals united into a long 4-sided or 8-ribbed tube; limb and part of the tube caducous. *Cor.* 4-petalled. *Stig.* 4-cleft, or spherical. *Caps.* 4-celled, 4-valved, many-seeded. *Onagrarieæ*, p. 117.

GAURA. *Cal.* 3—4-sepalled; sepals united into a long obovate tube; limb caducous. *Cor.* 3—4-petalled. *Seeds* 1—4, not crowned with pappus. *Onagrarieæ*, p. 117.

EPILOBIUM. *Cal.* 4-sepalled; sepals united into a long 4-sided tube; limb caducous. *Pet.* 4. *Caps.* elongated, 4-celled, 4-valved, many-seeded. *Seeds* crowned with pappus. *Onograrieæ*, p. 116.

OXYCOCCUS. *Cal.* superior, 4-cleft. *Cor.* 4-parted; segments sub-linear and revolute. *Fil.* converging. *Anth.* tubular, 2-parted. *Ber.* many-seeded. *Vaccineæ*, p. 225.

** *Flowers inferior.*

MENZIESIA. *Cal.* deeply 5-cleft. *Cor.* ovate, 4—5-cleft. *Stam.* inserted into the receptacle. *Caps.* 4—5-celled, the partitions formed by the inflexed margins of the valves. *Seeds* numerous, oblong. *Ericææ*, p. 218.

ACER. *Fl.* mostly polygamous. *Cal.* 5-lobed, or 5-parted. *Pet.* 5, or none. *Caps* 2, each with a long membranous expansion, (*samara*) united at base, 1-seeded. *Acerineæ*, p. 63.

DIRCA. *Perianth* coloured, campanulate; border obsolete. *Stam.* unequal, exserted. *Ber.* 1-seeded. *Thymeleæ*, p. 306.

JEFFERSONIA. *Cal.* 4-sepalled. *Pet.* 8. *Caps.* obovate, opening below the top by semicircular foramen. *Seeds* many, arillate at base. *Podophylleæ*, p. 18.

TRIGYNIA.

POLYGONUM. *Perianth* 4—6-parted, petaloid, persistent. *Nut* 1-seeded, mostly triangular. *Polygoneæ*, p. 300.

ENNEANDRIA.

MONOGYNIA.

LAURUS. *Perianth* 4—5-cleft, equal. *Stam.* 8—12, in a double row; outer ones all fertile; alternate inner ones fertile and furnished at base with 2 appendices or glands, (nectary.) *Drupe* fleshy. *Laurineæ*, p. 305.

DECANDRIA.

MONOGYNIA.

* *Flowers regular.*

VACCINIUM. *Cal.* superior, 4—5-toothed. *Cor.* urceolate or cam-

panulate, 4—5-cleft. *Fil.* inserted upon the germ. *Ber.* globose, 4—5-celled, many-seeded. *Vaccinææ*, p. 223.

Obs. The remaining genera of this division are included in the Natural Orders, *Ericææ*, p. 215, and *Pyrolæææ*, p. 225.—(*Leiophyllum*, omitted in its proper place, is described in the Appendix, p. 463.)

** *Flowers irregular.*

CASSIA. *Sep.* 5, scarcely united at base, somewhat unequal. *Pet.* 5, subequal. *Stam.* unequal; 3 upper ones sterile; 3 lowest beaked, upon longer and incurved filaments. *Legume* membranaceous, 2-valved. *Leguminosææ*, p. 93.

BAPTISIA. *Cal.* half 4 or 5-cleft, bilabiate. *Cor.* papilionaceous. *Pet.* nearly equal in length. *Stand.* with the sides reflexed. *Stam.* deciduous. *Leg.* ventricose, pedicelled, many-seeded. *Leguminosææ*, p. 77.

CERCIS. *Cal.* 5-toothed, gibbous at base. *Pet.* 5, with claws, sub-papilionaceous, all distinct; wings large. *Leg.* compressed; upper seminiferous suture margined. *Seeds* obovate. *Leguminosææ*, p. 94.

DIGYNIA.

HYDRANGÆA. *Cal.* superior, hemispheric, 5-toothed. *Pet.* 5, regular. *Caps.* 2-celled, 2-beaked, opening by a hole between the 2 horns. *Saxifragææ*, p. 137.

SAXIFRAGA. *Cal.* 5-parted. *Pet.* 5, entire, with short claws. *Caps.* with 2 beaks, 2-celled, many-seeded, opening between the beaks. *Saxifragææ*, p. 137.

CHRYSOSPLENIUM. *Cal.* superior, 4—5-cleft, coloured. *Cor.* none. *Caps.* with 2-beaks, 2-valved, many-seeded. *Saxifragææ*, p. 138.

TIARELLA. *Cal.* 5-parted, persistent. *Pet.* 5, inserted into the calyx, unguiculate, entire: *Caps.* 1-celled, 2-valved; valves unequal. *Saxifragææ*, p. 138.

MITELLA. *Cal.* campanulate, 5-cleft. *Pet.* 5, laciniate or toothed, inserted into the calyx. *Caps.* 1-celled, 2-valved; valves equal. *Saxifragææ*, p. 138.

SAPONARIA. *Cal.* tubular, 5-toothed, naked at the base. *Pet.* 5, unguiculate. *Caps.* 1-celled. *Caryophyllææ*, p. 49.

DIANTHUS. *Cal.* tubular, 5-toothed, with 2—4 imbricated scales at the base. *Pet.* 5, with long claws. *Caps.* 1-seeded. *Caryophyllææ*, p. 47.

SCLERANTHUS. *Cal.* 5-cleft, with the *stam.* inserted upon it. *Cor.* none. *Caps.* 1-celled, covered with the calyx. *Scleranthæææ*, p. 132.

TRIGYNIA.

SILENE. *Cal.* tubular, 5-toothed, naked. *Pet.* 5, unguiculate, mostly crowned at the orifice; limb bifid. *Caps.* 3-celled at base, dehiscent at the top into 6 teeth. *Caryophyllææ*, p. 47.

STELLARIA. *Cal.* 5-parted. *Pet.* 5, bifid. *Caps.* 1-celled, opening with 6 teeth, many-seeded. *Caryophyllææ*, p. 50.

ARENARIA. *Cal.* 5-sepalled. *Pet.* 5, entire. *Caps.* 1-celled, many-seeded. *Caryophyllææ*, p. 51.

PENTAGYNIA.

SEDUM. *Cal.* 5-parted. *Pet.* 5. *Caps.* 5, with a nectariferous scale at their base. *Crassulæææ*, p. 133.

OXALIS. *Cal.* 5-parted, persistent. *Pet.* 5. *Caps.* 5-angled, 5-celled, bursting at the angles. *Seeds* covered with an elastic aril. *Oxalideæ*, p. 69.

AGROSTEMMA. *Cal.* 1-leaved, tubular, coriaceous, 4-sided. *Pet.* 5, clawed; limb undivided. *Caps.* 1-celled. *Caryophylleæ*, p. 49.

CERASTIUM. *Cal.* 5-parted. *Pet.* 5, bifid. *Caps.* 1-celled, dehiscent at the apex with 5 or 10 teeth. *Caryophylleæ*, p. 53.

SPERGULA. *Cal.* 5-parted. *Pet.* 5, undivided. *Caps.* ovate. *Caryophylleæ*, p. 50.

PENTHORUM. *Cal.* 5-parted. *Pet.* 5 or none. *Caps.* 5-pointed, 5-celled, 5-sided at the apex. *Crassulaceæ*, p. 133.

DECAGYNIA.

PHYTOLACCA. *Perianth* 5-leaved, petaloid. *Ber.* superior, 10-celled, 10-seeded. *Phytolacceæ*, p. 299.

ICOSANDRIA.

MONOGYNIA.

OPUNTIA. *Cal.* many-sepalled; outer sepals flat, short; inner ones petal-like, obovate, rosaceous. *Ber.* ovate, umbilicate at the apex, tuberculate and often bearing spines. *Cactææ*, p. 134.

PRUNUS. *Cal.* inferior, 5-toothed. *Cor.* 5-petalled. *Drupe* ovate or oblong, fleshy, very smooth, covered with greyish dust; *putamen* compressed, acute at both ends, subsulcate at the margin, elsewhere smooth. *Amygdaleæ*, p. 95.

CERASUS. *Drupe* globose or umbilicate at base, fleshy, very smooth, destitute of grey powder; nucleus subglobose, smooth. *Amygdaleæ*, p. 96.

LYTHRUM. *Cal.* cylindric, striate, 8—12-toothed. *Pet.* 4—6, equal, inserted on the calyx. *Caps.* 2-celled, many-seeded. *Salicariæ*, p. 125.

CUPHEA. *Cal.* inflated, tubular, 6—12-toothed, unequal. *Pet.* 6—7, unequal, inserted into the calyx. *Caps.* 1—2-celled, at length bursting longitudinally. *Salicariæ*, p. 126.

DECODON. *Cal.* hemispheric-campanulate, 10-toothed; 5 teeth longer and spreading. *Pet.* 5, undulate. *Caps.* covered with the calyx, 3-celled, 3-valved. *Salicariæ*, p. 126.

DI-PENTAGYNIA.

(From Order 2 to Order 5 inclusive.)

SESUVIUM. *Cal.* 5-parted, coloured. *Pet.* none. *Stig.* 3—5. *Caps.* superior, 3—5-celled, opening circularly, many-seeded. *Ficoideæ*, p. 134.

Obs. The remaining genera of this division belong to the Orders *Rosaceæ*, (p. 98,) and *Pomaceæ*, (p. 110.)

POLYGYNIA.

CALYCANTHUS. *Lobes* of the *cal.* in many rows, imbricate, lanceolate, somewhat coriaceous, coloured. *Cor.* none. *Stam.* unequal. *Acines* many. *Calycantheæ*, p. 115.

Obs. All the other genera of this order are included under *Rosaceæ*, p. 98.

POLYANDRIA.

MONOGYNIA.

TILIA. *Cal.* 5-parted, inferior, deciduous. *Pet.* 5, naked, or with a scale within. *Caps.* coriaceous, 5-celled; *cells* 2-seeded, (rarely 1-celled, 1-seeded.) *Tiliaceæ*, p. 59.

HELIANTHEMUM. *Cal.* 5-leaved, 2 smaller than the rest. *Cor.* 5-petalled. *Caps.* 1-celled, 3-valved; valves septiferous in the middle. *Cistineæ*, p. 35.

HUDSONIA. *Cal.* tubular, 5-parted, unequal, inferior. *Cor.* 5-petalled. *Stam.* 9—30. *Caps.* 1-celled, 3-valved, 1—3-seeded. *Cistineæ*, p. 36.

PORTULACCA. *Cal.* inferior, 2-parted. *Pet.* 4—6. *Caps.* 1-celled, opening circularly. *Portulacææ*, p. 130.

TALINUM. *Cal.* of 2 ovate sepals. *Cor.* 5-petalled. *Caps.* 1-celled, 3-valved, many-seeded. *Receptacle* globose. *Portulacææ*, p. 130.

CHELIDONIUM. *Sepals* 2, smooth. *Pet.* 4. *Caps.* elongated, 1-celled, 2-valved. *Seeds* numerous, crested, free. *Papaveraceæ*, p. 21.

MECONOPSIS. *Pet.* 4. *Stig.* 4—6-rayed. *Caps.* obovate, 1-celled, 4—6-valved. *Papaveraceæ*, p. 21.

ARGEMONE. *Pet.* 4—6. *Stig.* 4—7, radiating, free. *Caps.* obovate, 1-celled, opening at the summit by valves. *Papaveraceæ*, p. 21.

SANGUINARIA. *Sep.* 2, deciduous. *Pet.* 8—12. *Stig.* 2. *Caps.* superior, oblong, 2-valved. *Papaveraceæ*, p. 21.

PODOPHYLLUM. *Sep.* 3. *Pet.* 6—9. *Stig.* large, subsessile, peltate. *Ber.* somewhat fleshy, not dehiscent. *Podophylleæ*, p. 18.

ACTÆA. *Cal.* 4-leaved, deciduous. *Pet.* 4. *Carpels* many-seeded. *Ranunculaceæ*, p. 13.

SARRACENIA. *Cal.* double, persistent; outer one of 3 leaves; inner one of 5, much larger. *Pet.* 5. *Stig.* very large, peltate, covering the stamens. *Caps.* 5-celled. *Sarraceniceæ*, p. 22.

NYMPHÆA. *Sep.* at the base of the disk. *Pet.* and *stam.* connected with the whole of the disk, which covers the *carpels*. *Nymphæaceæ*, p. 20.

NUPHAR. *Sep., pet.* and *stam.* inserted at the base of the disk. *Nymphæaceæ*, p. 20.

DI-PENTAGYNIA.

ASCYRUM. *Cal.* 4-sepalled; the 2 inner larger and cordate. *Pet.* 4. *Stam.* scarcely united at base. *Styles* 1—3. *Hypericineæ*, p. 62.

HYPERICUM. *Sep.* 5, unequal, more or less united at base. *Pet.* 5. *Stam.* in 3 or 4 parcels. *Styles* 3—5. *Caps.* membranaceous. *Hypericineæ*, p. 60.

OBS. The other genera belong to *Ranunculaceæ*, p. 3.

POLYGYNIA.

MAGNOLIA. *Sep.* 5. *Pet.* 6—9. *Carpels* 2-valved, 1-seeded, imbricated in a cone. *Seeds* pendulous, arillate. *Magnoliaceæ*, p. 14.

LIRIODENDRON. *Sep.* 3. *Pet.* 6. *Samara*, (wing-like carpels,) 1 or

2-seeded, imbricate in a cone, not opening, attenuated. *Magnoliaceæ*, p. 15.

ASIMINA. *Cal.* 3-parted. *Pet.* 6, spreading, ovate-oblong; the inner smaller. *Anth.* subsessile. *Ber.* several, ovate, sessile, many-seeded. *Anonaceæ*, p. 16.

HYDROPELTIS. *Cal.* of 3—4 sepals. *Pet.* 3—4. *Ovaries* 6—18. *Seeds* pendulous, ovate, globose. *Hydropeltideæ*, p. 18.

NELUMBUM. *Cal.* petaloid, of 4—6 sepals. *Pet.* numerous. *Carp.* numerous, deeply immersed in the upper surface of a turbinate receptacle or torus, 1-seeded. *Nymphaeaceæ*, p. 19.

Obs. The remaining genera belong to the Order *Ranunculaceæ*, p. 3.

DIDYNAMIA.

2 orders. 1. *Gymnospermia*. Seeds naked.

2. *Angiospermia*. Seeds in a capsule.

Obs. The genera of this class form a very natural group, having irregular or bilabiate flowers, with mostly 4 stamens (2 longer); but sometimes 2 are abortive, and hence such are arranged artificially in the class *Diandria*. The whole will be more easily, as well as correctly studied, by the natural orders. The genera belonging to the order *Gymnospermia* will be found among the *Labiata*, p. 270; those belonging to *Angiospermia* among the *Orobanchææ*, p. 260, *Scrophularineæ*, p. 261, and *Verbenaceæ*, p. 283.

TETRADYNAMIA.

Obs. This class is entirely natural; and it is therefore altogether unnecessary to repeat the generic descriptions. It is identical with the natural order *Crucifera*, p. 24. I have chiefly for the sake of convenience, preserved the Linnæan division into *Siliculosæ* and *Siliquosæ*.—*Gynandropsis* and *Polanisia*, (*Cleome* Linn.) usually arranged under this class, form the order *Capparideæ*, p. 34.

MONADELPHIA.

PENTANDRIA.

PASSIFLORA. *Cal.* 5-parted, coloured. *Pet.* 5, or none, inserted into the calyx. *Nect.* a filamentous crown. *Ber.* pedicelled. *Passiflorææ*, p. 129.

DECANDRIA.

GERANIUM. *Sep.* 5, equal. *Pet.* 5, equal, 5 alternate *stam.* longer, with nectariferous scales at the base. *Fruit* beaked, separating into 5 1-seeded capsules, each with a long naked simple awn. *Geraniaceæ*, p. 67.

POLYANDRIA.

Obs. The genera of order from the Natural Order *Malvaceæ*, p. 56.

DIADELPHIA.

HEXANDRIA.

Obs. The succeeding genera belong to the Natural Order *Fumariaceæ*, p. 22.

OCTANDRIA.

POLYGALA. *Cal.* 5-leaved, 2 of them wing-shaped and coloured. *Caps.* compressed, obovate or obcordate, 2-celled, 2-valved. *Seeds* pubescent. *Polygaleæ*, p. 44.

DECANDRIA.

Obs. The genera of this order, with a few usually arranged under the class Decandria, constitute the *Leguminosæ*, p. 76.

SYNGENESIA.

Obs. The plants of this class, with a few exceptions, have 5 anthers united into a single tube. They are further characterized by the flowers, commonly called florets, being clustered together in heads and inserted upon a common receptacle which is surrounded by an involucre; being usually known as compound flowers. They form the Natural Order *Compositæ*, p. 165.

GYNANDRIA.

Obs. The orders Monandria and Diandria of this class, constitute the *Orchideæ*, p. 342.

HEXANDRIA.

ARISTOLOCHIA. *Perianth* tubular, ventricose at base, dilated at the apex and ligulate. *Caps.* inferior, 6-celled, many-seeded. *Aristolochiæ*, p. 308.

DODECANDRIA.

ASARUM. *Perianth* campanulate, 3-cleft. *Anth.* adnate to the middle of the filaments. *Caps.* inferior, 6-celled. *Aristolochiæ*, p. 309.

MONOECIA.

MONANDRIA.

ZOSTERA. *Stam.* and *Pist.* separated, in two rows on one side of a *spadix*. *Spathe* leafy. *Perianth* none. **STERILE FL.** *Anth.* ovate sessile, alternating with the germs. **FERTILE FL.** *Ovary* 1, ovate. *Style* bifid. *Drupe* 1-seeded. *Fluviales*, p. 384.

ZANNICHELLIA. **STERILE FL.** *Perianth* none. **FERTILE FL.** *Perianth* single, 1-leaved. *Style* 1. *Stig.* peltate. *Caps.* sessile. *Fluviales*, p. 384.

CAULINIA. *Perianth* none. **STERILE FL.** *Anth.* sessile. **FERTILE FL.** *Style* filiform. *Stig.* 2-cleft. *Caps.* 1-seeded. *Fluviales*, p. 384.

EUPHORBIA. *Perianth* mostly wanting. *Invol.* 1-leaved, campanulate, 8 to 10 toothed, the inner segments membranaceous and erect. **STERILE FL.** 12 or more. *Fil.* articulated in the middle. **FERTILE FL.** solitary, stipulate, naked. *Caps.* 3-lobed. *Euphorbiaceæ*, p. 311.

DIANDRIA.

PODOSTENUM. *Cal.* and *Cor.* none. **STERILE FL.** *Stam.* 2, affixed to a common pedicel. **FERTILE FL.** *Germ* ovate. *Stig.* 1, sessile. *Caps.* 2-celled, 2-valved, many-seeded. *Seeds* minute. *Podostemeæ*, p. 124.

TRIANDRIA.

SPARGANIUM. *Fl.* in spherical heads. *Perianth* 3-leaved. *Drupe* dry, 1-seeded. *Typhaceæ*, p. 379.

CAREX. *Fl.* collected into an imbricated ament. *Glume* 1-flowered.

Cor. (nectary or perianth) ventricose, 1-valved, persistent, enclosing the coriaceous *nut* or *caryopsis*. *Cyperaceæ*, p. 430.

TYPHA. *Fl.* forming a long cylindrical dense spike. **STERILE FL.** *Perianth* none. *Stamens* 3, united below into 1 filament. **FERTILE FL.** *Perianth* none. *Pericarp* pedicellate, surrounded at base with hairs resembling a *pappus*. *Typhaceæ*, p. 380.

SCLERIA. **STERILE FL.** *Glumes* 2 or 6, many-flowered. *Paleæ* unarmed. **FERTILE FL.** *Glumes* 2 or 6, 1-flowered. *Paleæ* none. *Stig.* 1—3. *Nut* coloured, subglobose. *Cyperaceæ*, p. 430.

TRIPSACUM. **STERILE FL.** *Glume* 2 flowered; outer one sterile; inner neutre. *Cor.* a membranous glume. **FERTILE FL.** *Glume* 1-flowered, surrounded by a 1-leaved involucre, perforated near the base. *Cor.* a 2-valved glume. *Style* 2. *Seed* 1. *Gramineæ*, p. 399.

COMPTONIA. **STERILE FL.** *Ament* cylindrical; scales 1-flowered. *Perianth* 2-parted. **FERTILE FL.** *Ament* globose; scales 1-flowered. *Styles* 2. *Nut* ovate, 1-celled. *Amentaceæ*, p. 324.

TETRANDRIA.

ERIOCAULON. *Fl.* collected into a compact scaly head. **STERILE FL.** in the disk. *Perianth* single, 4-cleft; the two inner segments united nearly to their summit. *Stamens* 4—6. **FERTILE FL.** in the margin. *Perianth* single, deeply 4-parted. *Style* 1. *Stig.* 2—3. *Caps.* 2—3 lobed, 2—3 celled: cells 1-seeded. *Restiaceæ*, p. 369.

ALNUS. **STERILE FL.** *Ament* long cylindrical; scales 3-lobed, 3-flowered. *Perianth* single, 4-parted. **FERTILE FL.** *Ament* ovate; scales 2-flowered. *Perianth* none. *Styles* 2. *Nut* compressed. *Amentaceæ*, p. 326.

BOEHMERIA. **STERILE FL.** *Perianth* 4-parted. **FERTILE FL.** *Perianth* none. *Style* 1. *Nut* compressed. *Urticeæ*, p. 315.

URTICA. **STERILE FL.** *Perianth* single, 4-leaved. **FERTILE FL.** *Perianth* 2-leaved. *Nut* 1, shining. *Urticeæ*, p. 313.

PARIETARIA. *Fl.* polygamous. **PERFECT FL.** *Perianth* 4-cleft. *Stamens* elastic. *Style* 1. *Nut* 1, enclosed by the enlarged perianth. *Urticeæ*, p. 315.

MORUS. *Perianth* 4-parted; lobes concave. **FERTILE FL.** *Styles* 2. *Seeds* 1—2, covered by the fleshy perianth. *Artocarpeæ*, p. 316.

PENTANDRIA.

CROTONOPSIS. **STERILE FL.** *Perianth* 5-parted, with 5 petaloid scales. **FERTILE FL.** *Perianth* 5-parted. *Stig.* 3, twice bifid. *Caps.* 1-seeded, not opening. *Euphorbiaceæ*, p. 310.

AMARANTHUS. *Perianth* 2 to 5-leaved. **STERILE FL.** *Stam.* 3—5. **FERTILE FL.** *Styles* 3. *Caps.* 1-celled, 1-seeded, opening transversely all round. *Amaranthaceæ*, p. 294.

XANTHIUM. **STERILE FL.** *Involucre* imbricate. *Anth.* approximate but not united. *Recept.* chaffy. **FERTILE FL.** *Invol.* 2-leaved, 1-flowered. *Cor.* none. *Nut* 2-celled. *Compositæ*, p. 210.

AMBROSIA. **STERILE FL.** *Involucre* 1-leaved, hemispherical. *Anth.* approximate but not united. *Recept.* naked. **FERTILE FL.** *Invol.* 1-leaved, entire or 5-toothed, 1-flowered. *Cor.* none. *Nut* formed from the indurated calyx, 1 seeded. *Compositæ*, p. 209.

HEXANDRIA.

ZIZANIA. *Glume* none. **STERILE FL.** *Palea* 2, subawned. **FERTILE FL.** *Palea* 2, cucullate and awned. *Style* 2-parted. *Seed* 1, invested by the plaited paleæ. *Gramineæ*, p. 419.

HYDROCHLOA. *Glume* none. **STERILE FL.** *Palea* 2, awnless. **FERTILE FL.** *Palea* 2, awnless. *Stig.* 2, very long. *Seed* 1, reniform. *Gramineæ*, p. 419.

POLYANDRIA.

(*Stems not woody.*)

CERATOPHYLLUM. *Cal.* many-parted. **STERILE FL.** *Cor.* none. *Stam.* 16—20. *Anth.* tricuspidate. **FERTILE FL.** *Cor.* none. *Style* 1, filiform. *Nut* 1-seeded. *Ceratophylleæ*, p. 124.

MYRIOPHYLLUM. **STERILE FL.** *Cal.* 4-parted. *Cor.* 4-petalled. *Stam.* 4—6—8. **FERTILE FL.** *Cal.* adhering to the ovary; limb 4-lobed. *Pet.* none. *Nuts* 4, compressed or subglobose, 1-seeded. *Halorageæ*, p. 121.

SAGITTARIA. *Cal.* 3-leaved. *Pet.* 3. **STERILE FL.** *Stam.* about 24. **FERTILE FL.** *Ovaries* numerous. *Caps.* compressed, margined, 1-seeded. *Alismaceæ*, p. 376.

ARUM. *Spathæ* 1-leaved, cucullate, convolute at the base. *Spad.* naked above, bearing sessile anthers below the middle and ovaries at the base. *Ber.* 1-celled, many-seeded. *Aroideæ*, p. 381.

RENSELAERIA. *Spathæ* convolute. *Spad.* covered with flowers, fertile at the base, sterile above. *Perianth* none. *Ber.* 1-seeded. *Aroideæ*, p. 382.

CALLA. *Spathæ* ovate, somewhat flattened. *Spad.* covered with flowers. *Perianth* none. *Ber.* many-celled, many-seeded. *Aroideæ*, p. 282.

(*Stems woody.*)

Obs. The genera of this division are Forest Trees, and are included under the Nat. Ord. *Amentaceæ*, p. 317.

MONADELPHIA.

(*Stems not woody.*)

ACALYPHA. **STERILE FL.** *Perianth* 3 or 4-parted. *Stam.* 8—16. **FERTILE FL.** *Styles* 3, 2-parted. *Caps.* 3-celled, 3-seeded. *Euphorbiaceæ*, p. 311.

RICINUS. **STERILE FL.** *Perianth* 5-parted. *Stam.* numerous. **FERTILE FL.** *Perianth* 3-parted. *Styles* 3, 2-cleft. *Caps.* mostly echinate, 3-celled, 3-seeded. *Euphorbiaceæ*, p. 311.

PHYLLANTHUS. **STERILE FL.** *Perianth* 5—6-parted. *Fil.* often columnar. **FERTILE FL.**, resembling the sterile. *Nectary*? a 12 angled margin. *Styles* 3. *Caps.* mostly 3-grained. *Euphorbiaceæ*, p. 310.

MELOTHRIA. **STERILE FL.** *Cal.* 3—5-toothed. *Cor.* bell-form. *Fil.* 5, in 3 sets. **FERTILE FL.** *Cal.* and *cor.* as in the sterile. *Style* 1. *Stig.* 3. *Fruit* 3-celled, many-seeded. *Cucurbitaceæ*, p. 128.

MOMORDICA. **STERILE FL.** *Cal.* 5 cleft. *Cor.* 5 parted. *Stam.* in 3 sets. **FERTILE FL.** *Style* 3-cleft. *Ovary* 3-celled. *Fruit* often mucicate. *Cucurbitaceæ*, p. 128.

SICYOS. **STERILE FL.** *Cal.* 5-toothed; teeth subulate, 5-parted.

FL. 3? FERTILE FL. *Style* 3-cleft. *Fruit* 1-seeded, often spiny. *Cucurbitaceæ*, p. 128.

(*Stems woody.*)

Obs. The genera of this division belong to *Conifera*, p. 337.

DIOECIA.

DIANDRIA.

VALLISNERIA. **STERILE FL.** *Spathe* ovate, 2—4-parted. *Spad.* covered with minute flowers. *Perianth* 3-parted. **FERTILE FL.** *Spathe* 2-cleft, 1-flowered. *Perianth* elongated, 6-parted. *Stig.* 3, sessile, ovate, bifid. *Caps.* cylindric, 1-celled, many-seeded. *Hydrocharideæ*, p. 341.

SALIX. **STERILE FL.** *Ament* cylindric. *Scales* 1-flowered, with a nectariferous gland at the base. *Perianth* none. *Stam.* 1—5. **FERTILE FL.** *Scales* 1-flowered. *Perianth* none. *Stig.* 2. *Caps.* 1-celled, 2-valved, many-seeded. *Seeds* woolly. *Amentaceæ*, p. 318.

FRAXINUS. *Cal.* none, or 3—4-cleft. *Cor.* none, or deeply 4-parted. *Stam.* 2. *Caps.* 2-celled, 2-seeded, compressed and foliaceous at the extremity. Polygamous. *Oleaceæ*, p. 232.

TRIANDRIA.

EMPETRUM. *Perianth* consisting of 2 rows of scales. **STERILE FL.** *Stam.* 3. **FERTILE FL.** *Stig.* with 6—9 spreading rays. *Ber.* round, superior, 6—9-seeded. *Empetreæ*, p. 309.

TETRANDRIA.

MYRICA. *Ament* ovate-oblong; scales lunulate. **STERILE FL.** *Stam.* 4—6. *Anth.* 4-valved. **FERTILE FL.** *Ovary* 1. *Stig.* 2. *Drupe* 1-celled, 1-seeded. *Amentaceæ*, p. 324.

VISCUM. *Cal.* with the margin entire or a little prominent. **STERILE FL.** *Pet.* 4, united at base. *Anth.* 4, adnate with the petals. **FERTILE FL.** *Pet.* 4, distinct. *Stig.* 1, obtuse, sessile. *Ber.* globose, mucilaginous, 1-seeded. *Loranthaceæ*, p. 154.

PENTANDRIA.

NYSSA. **STERILE FL.** *Perianth* 5-parted. *Stam.* 5—10. **PERFECT FL.** *Perianth* 5-parted. *Stem.* 5. *Style* 1. *Drupe* inferior. *Santalaceæ*, p. 307.

ZANTHOXYLUM. *Cal.* 3—9-lobed, often 4—5-parted. *Pet.* as many as the lobes of the calyx, rarely none. *Stam.* and *carp.* as many as the lobes of the calyx. *Zanthoxyleæ*, p. 70.

ACNIDA. **STERILE FL.** *Perianth* 5-parted. **FERTILE FL.** *Per.* 3-parted. *Stig.* 3—5, sessile. *Caps.* 1-seeded. *Chenopodeæ*, p. 297.

HUMULUS. **STERILE FL.** *Perianth* 5-parted. *Anth.* with 2 pores at the extremity. **FERTILE FL.** *Scales* of the ament large, concave, entire, 1-flowered. *Per.* none. *Styles* 2. *Seed* 1. *Urticeæ*, p. 315.

CANNABIS. **STERILE FL.** *Perianth* 5-parted. **FERTILE FL.** *Per.* oblong, opening at the side. *Styles* 2. *Nut* 2-valved, covered by the closed perianth. *Urticeæ*, p. 315.

HEXANDRIA.

SMILAX. *Perianth* campanulate-spreading, 6-parted. **STERILE FL.**

Anth. adnate to the filaments. FERTILE FL. *Stig.* 3. *Ber.* globose, 3-celled. *Smilacæ*, p. 356.

DIOSCOREA. *Perianth* 6-parted. FERTILE FL. *Styles* 3. *Caps.* 3-celled, triangular, compressed; cells 2-seeded. *Seeds* with membranaceous margins. *Dioscoreæ*, p. 355.

GLEDITSCHIA. *Sepals* 3-4-5, equal. *Pet.* as many as the sepals, arising from the tube of the calyx. *Style* short. *Stig.* pubescent. *Legume* compressed, 1 or many-seeded. *Seeds* compressed. *Leguminosæ*, p. 93.

OCTANDRIA.

POPULUS. *Ament* cylindrical; scales lacerated. STERILE FL. *Anth.* 8-30, arising from a turbinate, oblique, entire, single perianth. FERTILE FL. *Per.* turbinate. *Stig.* 4. *Caps.* superior, 2-celled, 2 valved. many-seeded. *Seeds* woolly. *Amentacæ*, p. 322.

DIOSPYROS. *Calyx* 4-6 cleft. *Cor.* urceolate, 4-6 cleft. STERILE FL. *Stam.* 8-16; *fil.* often producing 2 anthers. FERTILE FL. like the sterile. *Stig.* 4-5. *Ber.* 8-12 seeded. *Ebenacæ*, p. 229.

SHEPHERDIA. STERILE FL. *Perianth* 4-cleft. *Stam.* 8, included, alternating with 8 glands. FERTILE FL. *Per.* 4-cleft, bell-form, superior. *Style* 1. *Stig.* oblique. *Ber.* 1-seeded. *Elæagnæ*, p. 306.

ENNEANDRIA.

UDORA. *Spathe* bifid. *Perianth* 6-parted; 3 inner segments petaloid. STERILE FL. *Stam.* 9, 3 of them interior. FERTILE FL. *Tube* of the perianth very long. *Sterile fil.* 3. *Caps.* bladder-like, about 3-seeded. *Seeds* cylindric. *Hydrocharideæ*, p. 342.

DECANDRIA.

GYMNOCLADUS. *Cal.* tubular, 5-cleft. *Cor.* 5-petalled. *Legume* oblong, thick, pulpy within. *Leguminosæ*, p. 93.

POLYANDRIA.

MENISPERMUM. *Sepals* and *pet.* arranged in fours, 2 or 3-rowed. STERILE FL. *Stam.* 16-20. FERTILE FL. *Ovaries* 2-4. *Drupe* berried, roundish-reniform, 1-seeded. *Menispermææ*, p. 16.

MONADELPHIA.

JUNIPERUS. STERILE FL. *Ament* ovate; scales whorled and peltate. *Anth.* 4-8, 1 celled. FERTILE FL. *Ament* globose; scales 3, coadunate. *Stig.* gaping. *Ber.* with 3 bony 1-seeded nuts, surrounded with the united and fleshy scales. *Coniferæ*, p. 337.

TAXUS. *Fl.* surrounded with numerous scales. STERILE FL. *Stam.* 8-10. *Anth.* peltate. FERTILE FL. *Style* none. *Stig.* concave. *Drupe* fleshy, open at the extremity. *Nut* 1-seeded. *Coniferæ*, p. 341.

CRYPTOGAMIA.

FILICES.

Obs. This order forms the *Filicoideæ*, or Fern-like plants, p. 445.

TABLE

OF THE

NATURAL ORDERS:

Showing the accordance of the Systems of **JUSSIEU** and
DE CANDOLLE.

TABLE OF THE NATURAL ORDERS.

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SUBCLASS I. *Dichlamydeæ. Thalamifloræ. D. C.*

Perianth double. Petals distinct and hypogynous.

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VASCULARES, OR FLOWERING PLANTS.

PLANTS furnished with flowers, and spiral vessels—PHÆNOGAMOUS OR PHANEROGAMOUS PLANTS of *Authors*.

CLASS I. EXOGENÆ OR DICOTYLEDONOUS PLANTS.

Trunk more or less conical, consisting of three parts, one within the other, viz. bark, wood and pith, of which the wood is enclosed within the two others; increasing by an annual deposit of new wood and cortical matter, between the wood and bark. *Leaves* always articulated with the stem, their veins branching and reticulated. *Embryo* with two or more opposite cotyledons, which often become green and leaf-like after germination; radicle naked; *i. e.* elongating into a root without penetrating any external case.

SUBCLASS I. THALAMIFLORÆ. *De Cand.*

Calyx many sepalled. *Petals* many, distinct, and with the *stamens* inserted into the receptacle.

ORDER I. RANUNCULACEÆ. *De Cand. Lind.*

Calyx with many definite *sepals*, or many-parted. *Petals* 5—15, (sometimes wanting,) in one or more rows, distinct. *Stamens* indefinite in number; anthers adnate, generally turned outwards. *Pistils* numerous. *Fruit* either consisting of dry nuts or carpels, or baccate with one or more seeds, or follicular with one or two valves. *Seeds* albuminous; when sol-

itary, either erect or pendulous. *Embryo* minute. *Albumen* corneous, large.

Herbs or *Undershrubs*. *Leaves* simple, often variously lobed, with petioles, more or less dilated at their base.

1. CLEMATIS. Linn.

Involucre none, or like a calyx under the flower. *Sepals* 4—8, coloured. *Petals* none, or shorter than the sepals. *Carpels* many, terminated by a long, mostly feathery awn. *Polyandria*. *Polygynia*.

1. *C. virginiana* Linn.: stem climbing; leaves ternate; leaflets cordate-ovate, acute, coarsely toothed or lobed; flowers paniculate, diœcious.

HAB. Can. to Flor. N. to lat. 55° W. to Columbia river. Aug.

♂.—*Stem* long. *Flowers* white, in large panicles. Tails of the *carpels* at length clothed with long silken hairs, having the appearance of tufts of wool. *Virgins Bower*.

2. *C. viorna* Linn.: stem climbing; leaves pinnately divided; segments entire, or 3-lobed, ovate, acute; floral ones entire; peduncles 1-flowered; sepals thick, acuminate, connivent, reflexed at the apex.

HAB. Woods. Penn. to Geor. W. to Miss. June, July. 2f.—*Flowers* large, nodding, violet. Tails of the *carpels* long, plumose.

3. *C. ochroleuca* Ait.: herbaceous, erect, simple, pubescent; leaves simple, ovate, very entire, the younger ones with the calyx silky; flower peduncled, terminal, solitary, nodding.—*C. sericea* Mich.

HAB. Woods. Penn. to Geor. June. 2f.—*Stem* 12—18 inches high. *Flowers* yellowish-white. *Carpels* conspicuously feathered.

Sepals 4; *petals* many, minute. ATRAGENE.

4. *C. verticillaris* De Cand.: leaves whorled in fours, ternate; leaflets petioled, cordate, nearly entire; peduncles 1-flowered; petals acute.—*Atragene americana*. Sims. Pursh.

HAB. Rocks. N. Y. Penn. N. to lat. 54°. June. ♂.—*Stem* climbing. *Flowers* very large, purple.

2. THALICTRUM. Linn.

Involucre under the flower none. *Petals* none. *Carpels* dry, not awned, sometimes stipitate, sometimes with a longitudinal furrow. *Polyandria*. *Polygynia*.

* *Stamens* longer than the *Calyx*.

1. *T. cornuti* Hook.: leaves decompose; leaflets roundish-obovate or oblong, 3-lobed, glaucous beneath, with the nerves scarcely prominent; flowers mostly diœcious; filaments sub-clavate; anthers elliptic or sub-linear; stigmas filiform, membranaceous on the margin; carpels ovate-oblong.—*T. cornuti* and *T. pubescens* Pursh.—*T. revolutum* Ell.

HAB. Wet grounds. From lat. 56° N. to Car. June, July. 2f.—
Stem 3—4 feet high, branching. Leaves extremely variable in form, deep green above, paler glaucous smooth or pubescent beneath. Flowers in a compound leafy panicle, greenish.—I have quoted the above characters from Dr. Hooker, (Fl. Bor. Amer.) who though doubtful whether this is the *T. cornuti* of Linnæus, considers it the plant described under that name by Pursh. And he has retained this as a specific name, in preference to reducing it to a doubtful synonym as De Candolle has done. *T. pubescens* of Pursh only differs from the present plant in the shape of the anthers.

2. *T. dioicum* Linn. : very smooth ; leaves decompose ; leaflets roundish, cordate, obtusely lobed, glabrous ; flowers diœcious, panicled ; filaments filiform ; fruit ovate, striate.—*T. lævigatum* Mich.

HAB. Banks of streams. Can. to Car. and N. to lat. 67°. April. 2f.—Stem 1—2 feet high. Flowers white, in a terminal panicle.

3. *T. rugosum* Linn. : leaves decompose ; leaflets ovate-lanceolate, rugose, veined, obtusely lobed ; flowers diœcious, in panicles ; filaments filiform.

HAB. Swamps. Penn. to Car. June—Aug. 2f.—Stem 3—5 feet high. Flowers white.

4. *T. purpurascens* Linn. : leaves compound, shorter than the stem ; leaflets roundish, 3-cleft, and incised, glaucous beneath ; panicles nearly leafless, contracted ; flowers monœcious or diœcious, cernuous ; filaments coloured.

HAB. Dry hills. Can. to Virg. May, June. 2f.—Plant small. Stamens and filaments purple. This is perhaps only *T. dioicum* with purple flowers.

** Stamens shorter than the petaloid calyx.

5. *T. anemonoides* Mich. : root tuberous ; radical leaves biternate ; leaflets subcordate, 3-toothed ; floral leaves petioled, resembling an involucre ; flowers perfect, few, umbelled ; petaloid calyx 8—10 leaved.—*Anemone thalictroides* Linn.

HAB. Woods. Common throughout the U. S. April, May. 2f.—Stem 6—8 inches high. Flowers white. The flowers of this species resembles those of *Anemone*, but the fruit that of *Thalictrum*. It is retained in this place by De Candolle and Hooker.
Rue leaved *Anemone*.

3. ANEMONE. Linn.

Involucre remote from the flower, of 3 divided leaves. Calyx petaloid, with 5—15 sepals. Petals none.

Polyandria. Polygynia.

1. *A. nemorosa*, var. *quinguefolia* De Cand. : leaves ternate ; segments 5-parted, incisely dentate, lanceolate, acute ; involucre similar, petioled ; stem 1-flowered ; sepals 6, elliptic ; capsules awnless.—*A. quinguefolia* Linn.

HAB. Woods. Can. to Car. N. to lat. 53°, extending westward to the Rocky mountains. April, May. 2f.—Stem 6—8 inches high. *Flowers* white varying to purple. *Leaves* narrow and more divided than in the European plant. *Wood* *Anemone*.

2. *A. lancifolia* Pursh : leaves petioled, ternate ; leaflets lanceolate, crenate, dentate ; sepals 5, ovate, acute ; fruit ovate ; style short, uncinat.

HAB. High mountains. Penn. and Virg. May, July. 2f.—Resembles the foregoing species, but the flowers are larger and clear white. Pursh.—De Candolle who has examined Pursh's plant in the herbarium of Lambert, thinks it scarcely distinct from the Linnæan *A. trifolia*, while Dr. Hooker refers it with a mark of doubt to *A. nemorosa*.

3. *A. pennsylvanica* Linn. : leaves 3-parted ; segments 3-cleft ; lobes oblong, incisely toothed, acuminate ; involucre similar, sessile, bearing several pedicels, one naked and 1-flowered, the others involucellate ; sepals 5, elliptic ; fruit pubescent, compressed, crowned with a long style.—*A. aconitifolia* Mich.

HAB. Meadows. Throughout the U. S. N. to Hudson's Bay. June, July. 2f.—Stem a foot high. *Flowers* white, large. By some botanists *A. dichotoma* of Linneus, is considered distinct from the above, but it is most probably identical with it.

4. *A. virginiana* Linn. : leaves ternate ; segments ovate-lanceolate, 3-cleft, acuminate, incisely toothed ; involucre similar, petiolate ; sepals 5, elliptic, acuminate, silky without ; peduncles elongated ; fruit oblong, woolly.

HAB. Woods. Throughout the U. S. and Can. as far N. as lat. 55°. July. 2f.—Stem 18—20 inches high. *Flowers* small, greenish. *Peduncles* elongated.

4. HEPATICA. Willd.

Involucre 3-leaved, 1-flowered, resembling a calyx, entire. *Sepals* petaloid, 6—9, arranged in 2 or 3 rows. *Ovaries* many. *Carpels* without an awn. *Polyandria*. *Polygynia*.

H. triloba Willd. : leaves cordate, 3-lobed ; lobes entire ; scape and petioles hairy.—*Anemone Hepatica* Linn.

a. lobes of the leaves somewhat acute.—*H. triloba* De Cand.

b. segments of the leaves acute.—*H. acutiloba* De Cand.

d. lobes of the leaves obtuse.—*H. americana* De Cand.

HAB. In woods. Common throughout the U. S. and N. to lat. 52°. April, May. 2f.—There appears to be no doubt that these supposed distinct species are nothing more than varieties. They grow indiscriminately, and the lobes of the leaves assume almost every variety of form. *Liverwort*.—*Early Anemone*.

5. HYDRASTIS. Linn.

Sepals 3, ovate. *Petals* none. *Stamens* and *ovaries* numerous. *Carpels* berry-like, numerous, aggregated in a head, terminated by the style, 1-celled, 2-seeded.

Polyandria. Polygynia.

H. canadensis Linn.

HAB. Rocks woods. Can. to Car. W. to Miss. Rare. May. 2l.—*Stem* 6—8 inches high, with 2 nearly opposite leaves above. *Leaves* petiolate, emarginate at base, incisely serrate. *Flower* solitary, pedunculate, reddish white. *Fruit* fleshy, red, like that of a *Rubus*. The root affords a juice of a fine yellow colour, which is used by the Indians for staining skins and clothing.

Yellow Pucoon.

6. RANUNCULUS. Linn.

Sepals 5, not deciduous. *Petals* 5, rarely 10, with a honey scale at the base on the inside. *Stamens* and *ovaries* numerous. *Carpels* ovate, somewhat compressed, terminating in a point or horn, smooth, striated, or tuberculated, arranged in a globose or cylindric head. *Polyandria. Polygynia.*

* *Carpels transversely rugose-striate. Petals white.*

1. *R. aquatilis*, var. *capillaceus* De Cand. : stem filiform, floating ; leaves all submersed, divided into capillary diverging segments ; petals obovate, longer than the calyx.—*R. fluvialis* Willd. Pursh.

HAB. In streams. Throughout the U. S. and British America, N. to lat. 68°. July, Aug. 2l.—*Stem* long. *Leaves* petioled. *Flowers* small, white. There are several varieties of *R. aquatilis*, which have been described as distinct species.

Water Crowfoot.

** *Carpels smooth, ovate, collected into a roundish head. Flowers yellow.*

† *Leaves undivided.*

2. *R. lingua* Linn. : leaves lanceolate, subserrate, semiamplexicaul ; stem erect, smooth, succulent, many-flowered.

HAB. Banks of streams. N. S. July, Aug. 2l.—*Stem* 2—3 feet high, with erect branches. *Leaves* very long, linear-lanceolate. *Flowers* large.

Great Spearwort.

3. *R. flammula* Linn. : leaves glabrous, linear-lanceolate or sub-ovate, subentire, the lower ones petiolate ; stem more or less decumbent, rooting ; peduncles opposite to the leaves.—*R. flammula*, var. *major* Hook.

HAB. Swamps. Can. to. Virg. July, Sept. 2l.—*Stem* 12—18 inches high, succulent. *Flowers* smaller than in the former.—Said to be a powerful and speedy emetic. *Small Spearwort.*

4. *R. reptans* Linn. : leaves linear, entire, remote, smooth ; stem filiform, creeping, jointed ; joints 1-flowered.—*R. filiformis* Mich.—*R. reptans*, var. *filiformis* De Cand. Torr.—*R. flammula*, var. *filiformis* Hook.

HAB. River banks. N. S. and N. to Labrador. July, Aug. 2l.—A very delicate species.—Stem 6—12 inches long. Flowers small. Fruit very smooth. Although coming from such high authority, I cannot yet adopt the opinion of Dr. Hooker that this plant is a mere variety of *R. flammula*. From a comparison of specimens, I am satisfied that our plant is identical with the foreign *R. reptans*. *Filiform Crowfoot*.

5. *R. pusillus* Pursh : leaves petioled ; lower ones ovate, subdentate ; upper ones linear-lanceolate ; stems many, erect ; pedicels opposite to the leaves, solitary, 1-flowered.

HAB. Wet grounds. N. J. to S. Car. June—Aug. 2l.—Stems 6—12 inches high, weak. Flowers small, pale-yellow.—Distinguished from *R. flammula* by its smaller size, and by its lower leaves being ovate.

6. *R. cymbalaria* Pursh : stems sarmentose filiform ; leaves petiolate, smooth, somewhat fleshy, cordate, reniform or ovate, coarsely crenate ; scapes naked, elongated, 3-flowered ; petals linear, as long as the calyx ; carpels striate.—*R. cymbalaria*, var. *americanus* De Cand.

HAB. Salt marshes. N. Y. Mass. Can. to lat. 68° N. and from Hudson's Bay to the summits of the Rocky mountains. July, Aug. 2l.—Scapes 2—6 inches high. Flowers small. Fruit oblong. Its runners are very properly compared by Dr. Smith, to those of the garden strawberry. *Sea Crowfoot*.

†† *Leaves divided*.

7. *R. auricomus* Linn. : leaves smooth ; radical ones petioled, cordate, mostly 3-parted or lobed ; cauline ones sessile, divided into linear, entire or subdentate lobes ; calyx pubescent, shorter than the petals, spreading.

HAB. Woods and meadows. Penn. Pursh. May, June. 2l.—Stem a foot or more high. Flowers middle sized. Pursh, I believe, is the only authority for this as an American species.

Wood-Crowfoot.

8. *R. abortivus* Linn. : leaves smooth ; radical ones petiolate, cordate-orbiculate, crenate, sometimes 3-parted ; stem leaves ternate and 3—5 cleft, with linear segments ; upper ones sessile ; calyx a little longer than the petals, reflexed.

HAB. Wet grounds. Throughout the U. S. and Can. July, Aug. 2l.—Stem a foot high. Leaves very variously dissected, mostly smooth, sometimes pubescent. Flowers small, yellow, the petals being sometimes twice as long as the calyx. Carpels compressed, forming an ovate or nearly globose head. *R. nitidus* of Walter, is a variety of this species, differing only in size, being nearly twice as large.

9. *R. scleratus* Linn. : leaves smooth ; radical ones petioled, 3-parted, the segments lobed ; cauline ones 3-lobed, lobes oblong, linear, entire ; calyx smooth ; carpels small, numerous, forming an oblong head.

HAB. Wet grounds. From lat. 67° N. to S. Car. May—Aug. 2l.—Stem a foot high, branched, succulent. Flowers small. The plant is almost entirely glabrous. *Celery leaved Crowfoot*.

10. *R. lacustris* Beck and Tracy: stem elongated; emerged leaves reniform, 3—many parted; submersed ones cleft into numerous capillary segments; petals 5—8, obovate, twice as long as the sepals; nectary concave; fruit subglobose.—*R. multifidus* Pursh.—*R. Purshii* Hook.

HAB. Stagnant waters. N. S. N. to near the Arctic Sea. W. to the Rocky mountains. May, June. 2l.—Stem 3—4 feet long. Flowers large, shining, bright yellow. When the plant grows in water the leaves are divided into capillary segments, but when found on muddy banks they are often rounded or reniform, and divided into only 3—5 blunt segments. Hence the reason why this plant has been made the basis of several distinct species. I should observe that the more common state of it was for a long time mistaken by our botanists for *R. fluviatilis*; as was first shown by Mr. James G. Tracy and myself, in 1822. (*N. Y. Med. & Phys. Jour.*) The name *R. multifidus*, applied to it by Pursh, had previously been appropriated by Sir J. E. Smith to a totally distinct species from Egypt. De Candolle gives a new name to the Egyptian plant, retaining Pursh's name for the present one; while Dr. Hooker unites several supposed distinct species under the name of *R. Purshii*. On the whole I have thought best to retain the name imposed by us: though an attentive examination has satisfied me that the plant is much more variable than I had formerly supposed.

11. *R. acris* Linn.: leaves mostly pubescent, 3-parted; lobes incisely toothed, acute; upper ones linear; stem erect, many-flowered, subpubescent; peduncles terete, not furrowed; calyx spreading, subvillose; carpels terminated by nearly a straight point.

HAB. Meadows. N. S. May—Aug. 2l.—Stem varying much in height, mostly hairy. Flowers bright yellow, shining. A specimen in the herbarium of Dr. T. R. Beck, labelled by Muhlenberg *R. saniculæformis*, is identical with the present species.

Meadow Crowfoot.

12. *R. repens* Linn.: leaves ternate; leaflets wedgeform, 3-lobed, incisely dentate; central one petiolate; main stems prostrate; flowering ones erect; peduncles furrowed; calyx pilose, spreading; carpels with a straight point.

HAB. Wet meadows. Can. to Car. June—Sept. 2l.—Plant increasing by runners. Flowering stems erect, 1—2 feet high. Flowers middle sized. I am disposed to unite with this species *R. nitidus* of Muhlenberg and Hooker.

13. *R. clintonii* Beck: somewhat hairy; stems creeping and rooting at each of the joints; lower leaves on long petioles, ternate; leaflets toothed and incised, cuneate, terminal one petioled; floral leaves incised or linear; peduncle 1—3 flowered; petals rounded; calyx spreading; carpels margined, with a short uncinatè style.—*R. prostratus* Eat.

HAB. Banks of the canal near Rome, Oneida co. N. Y. June, July. 2l.—Much smaller than *R. repens*, at least of American botanists, in all its parts except the flower, which is of a bright yellow and about as large as that of *R. acris*. Leaves seldom

more than 1 1-2 inches in length, and about the same in breadth. *Stems* distinctly creeping like that of *R. reptans*; *flowering ones* 6—8 inches high. *Style* short and hooked. Whole plant somewhat hairy. I have named this species, which I must believe to be quite distinct, in token of my friendship for G. W. Clinton, Esq. It is undoubtedly the same plant which is described by Prof. Eaton in his *Manual of Botany*, (5th ed.) under the name of *R. prostratus* of Lamarck. But that species, if indeed it exists, is a very obscure one, and has heretofore been found only in the neighborhood of Paris. De Candolle does not mention it in his *Prodromus*, and Sprengel places it as a synonym under *R. repens*. *Syst. Veg.* ii. 556. The only description of it that I have met with is in the elaborate article *Ranunculus*, in Rees' *Cyclopædia*, from the pen of the late Sir James Edward Smith.

14. *R. hispidus* Mich.: erect, branched; stem and petioles with stiff spreading hairs; leaves ternate or 3-parted; leaflets or segments acutely lobed; pubescence of the pedicels appressed; calyx hairy, at length reflexed; carpels in a globose head, margined, compressed, smooth; style very short and straight.

HAB. Wet grounds. Can. to Car. N. to lat. 67° and from Hudson's Bay to the Pacific. June—Aug. 2l.—*Stem* 18 inches high, very hairy; *Lower leaves* on long petioles; upper ones nearly sessile; leaflets nearly all petioled, 3-cleft or 3-parted, attenuate at base. *Flowers* about the size of *R. acris*.

Hairy Crowfoot.

15. *R. pennsylvanicus* Linn.: stem erect and with the petioles covered with stiff spreading hairs; leaves ternate, villous; segments subpetiolate, acutely 3-lobed, incisely serrate; calyx reflexed; carpels with a short straight style, collected in an oblong head.

HAB. Wet meadows. From the Arctic regions to Geor. July, Aug. 2l.—*Stem* 18 inches high. *Flowers* large. Distinguished from *R. hispidus*, to which it is most nearly allied, by its oblong head of fruit, and by its still shorter style.

16. *R. recurvatus* Pursh: stem erect and with the petioles covered with spreading hairs; leaves 3-parted, hairy; segments oval, subincised; the lateral ones 2-lobed; calyx reflexed; petals lanceolate; carpels uncinat.

HAB. Shady woods. Throughout the U. S. and from Labrador to the Columbia river. June—Aug. 2l.—*Stem* 12—15 inches high. *Flowers* small, pale yellow.

17. *R. fascicularis* Muhl.: stem erect, branched; leaves on long petioles, pubescent, ternate; the middle segment deeply 3-cleft; lateral remotely 3-lobed; calyx spreading, shorter than the petals, villous; nectary flat, wedgeform; pericarps rounded, compressed, collected into a globose head.

HAB. Woods. N. S. and Can. W. to Miss. April, May. 2l.—*Root* fascicled. *Flowers* large. Varies considerably in the form

of its leaves, which are however always much more compound than is usual in this genus.

18. *R. marylandicus* Poir.: stem erect, somewhat branched and with the petioles soft hairy; leaves smoothish, ternate; leaflets 3-lobed; lobes oblong, acute, incisely toothed; calyx smooth, spreading, shorter than the petals; pericarps compressed, with a straight acuminate style.

HAB. Woods. Penn. to Virg. May—July. 2f.—Flowers pale yellow. Pursh.

19. *R. bulbosus* Linn.: hairy; radical leaves ternate, on long petioles; leaflets petiolate, 3-cleft, the segments narrow, incisely toothed; stem erect, bulbous at the base; calyx reflexed, hairy; petals obcordate, shorter than the sepals.

HAB. Meadows. May—Aug. 2f.—Stem 8—15 inches high. Flowers large, bright yellow. Medicinal. See Big. Med. Bot. iii. 61. Buttercups.

*** Carpels aculeate or tuberculate.

20. *R. hirsutus* Curt.: leaves ternate or 3-lobed; lobes obtuse, incisely-toothed, middle one pedunculate; calyx reflexed; stem not bulbous at the base; carpels with a single row of small tubercles on their margins.—*R. philonotis* Pursh.

HAB. Wet fields. Conn. and Penn. June—Oct. 2f.—This has probably been confounded with some other species; but it differs from all our northern ones, by its tuberculate carpels.

7. CALTHA. Linn.

Calyx coloured, with 5 roundish sepals resembling petals. Petals none. Stamens numerous. Capsules 5—10, compressed, spreading, 1-celled, many-seeded.

Polyandria. Polygynia.

1. *C. palustris* Linn.: stem succulent, erect; leaves cordate, suborbicular, obtusely crenate, petiolate; flowers large, pedunculate; sepals ovate.

HAB. In bogs. N. S. and Can. Labrador to the Columbia river. April, May. 2f.—Stem a foot high, dichotomous. Leaves large and shining. Flowers peduncled, large yellow.

Marsh Marigold.

2. *C. integerrima* Pursh: stem erect, corymbose; leaves orbicular-cordate, very entire, with the sinus closed; floral ones sessile, reniform, obsoletely crenate at the base; sepals oval, obtuse.

HAB. Boggy meadows. N. S. May—July. 2f.—Flowers corymbose, smaller than No. 1. Sepals very obtuse.

3. *C. parnassifolia* Raf.: stem erect, 1-flowered, 1-leaved; radical leaves petiolate, lanceolate-cordate, obtuse, many-nerved; sepals elliptical.—*C. ficaroides* Pursh.—*Ranunculus ficaria* Walt.

HAB. Cedar swamps. N. J. to Car. June, July. 2l.—*Flowers* deep yellow, middle sized.

4. *C. flabellifolia* Pursh: stem procumbent, many-flowered; leaves dilated-reniform; lobes widely spreading, coarsely and acutely toothed; peduncles axillary, solitary, 1-flowered; sepals obovate; capsules uncinat.

HAB. Sand spring, on Pokono mountain. Penn. Pursh. July, Aug. 2l.—*Stem* a foot high. *Flowers* yellow, middle sized. Allied to *C. natans* found in Canada and in Siberia.

8. TROLLIUS. Linn.

Sepals coloured, 5—10—15, deciduous, petaloid. *Petals* 5—20, small. *Capsules* many, subcylindrical, sessile, many-seeded. *Polyandria. Polygynia.*

T. americanus Muhl.: leaves palmate; sepals 5—10, spreading; petals 5—10, shorter than the stamens.—*T. laxus* Pursh.

HAB. Wet grounds. Western part of N. Y. Penn. W. to the Rocky mountains. May—July. 2l.—*Stem* a foot or more high. *Flowers* terminal, large, yellow. Probably often mistaken for a species of *Ranunculus*.

9. COPTIS. Salisb.

Sepals 5—6, coloured, petaloid, deciduous. *Petals* small, cucullate. *Stamens* 20—25. *Capsules* 6—10, on long stalks, membranous, 4—6 seeded. *Polyandria. Polygynia.*

C. trifolia Salisb.: leaves on long petioles, ternate; leaflets obovate, obtuse, toothed or obscurely 3-lobed; scape 1-flowered.—*Helleborus trifolius* Linn.

HAB. Swamps. N. S. and Can. May—July. 2l.—*Scape* 4—6 inches high. *Flowers* white. It affords a bitter infusion and a yellow dye.—*See Big. Med. Bot. i. 60.—Raf. Med. Fl. i. 127.*

Gold Thread.

10. AQUILEGIA. Linn.

Sepals 5, deciduous, petaloid. *Petals* 5, bilabiate above, drawn out into a spur at base. *Capsules* 5, distinct, many seeded, with acuminate styles. *Polyandria. Pentagynia.*

A. canadensis Linn.: spurs straight; styles and stamens exserted; sepals somewhat acute, a little longer than the petals; segments of the leaves 3-parted, rather obtuse, incisely toothed.

HAB. Rocks. Throughout the U. S. and Can. April, May. 2l.—*Stem* 1—2 feet high, branched above. *Leaves* glaucous; radical ones biternate, the upper ones becoming gradually more simple. *Flowers* yellow and scarlet. *Wild Columbine.*

11. DELPHINIUM. *Linn.*

Calyx deciduous, petaloid, irregular, the upper sepal produced downward into a spur. *Petals* 4; 2 upper ones horned behind. *Capsules* 1—5. *Polyandria. Di-Pentagynia.*

* *Capsules* 3—5. *Petals* free. *Perennial.*

1. *D. azureum* Mich.: petioles a little dilated at the base; leaves 3—5 parted, many-cleft, lobes linear; raceme erect; petals densely bearded at the apex; flowers on short pedicels.

HAB. Woods. Penn. to Car. W. to Miss. May. 24.—*Stem* 2 feet high. *Flowers* large, blue.

2. *D. exaltatum* Ait.: petioles not dilated at the base; leaves flat, 3—7 cleft beyond the middle; lobes wedgeform, 3-cleft at the apex, acuminate; lateral ones often 2-lobed; raceme erect; spur straight, as long as the calyx; capsules 3.—*D. tridactylum* Mich.

HAB. Woods. N. S. Torr. Car. Miss. May. 24.—*Stem* 2 feet high. *Flowers* large, light blue.

** *Capsule* 1. *Petals* united. *Annual.*

3. *D. consolida* Linn.: stem erect, somewhat glabrous, divaricately branched; flowers few, in lax racemes; pedicels longer than the bracts; capsule smooth.

HAB. Near cultivated grounds. June. ☉.—*Stem* 2 feet high. *Flowers* blue. Introduced. *Larkspur.*

12. ACONITUM. *Linn.*

Calyx petaloid, irregular, deciduous, or marcescent; upper sepal concave, helmet-form. *Petals* (nectaries) 2, with long claws, (on peduncles) hooded, recurved. *Capsules* 3—5.

Polyandria. Di-Pentagynia.

A. uncinatum Linn.: panicle rather loose, with divergent branches; galea exactly conical; spur inclined, somewhat spiral; styles 3—5; leaves 3-lobed; lobes equal.

HAB. Mountains. Penn. to Car. Sept. 24.—*Stem* twining, branching. *Leaves* coriaceous, deeply 3-lobed. *Flowers* 3—4, near the summit of each branch, large, purple. De Candolle notices two American varieties of this species.

13. ACTÆA. *Linn.*

Calyx deciduous, 4 sepalled. *Petals* 4. *Carpels* many seeded. *Polyandria. Di-Pentagynia.*

* *Carpels* dry, dehiscent.

1. *A. racemosa* Linn.: leaves ternately decompound; leaflets ovate-oblong, dentate and incised; racemes panicled, very long; flowers

with 1-style.—*A. monogyna* Walt.—*Cimicifuga serpentaria* Pursh.—*C. racemosa* Nutt. and Torr.—*Macrotys serpentaria* Raf. and Eat.

HAB. Woods. Can. to Flor. July, Aug. 2l.—Stem 4—5 feet high. Racemes 6—10 inches long, somewhat paniced. Flowers nearly white. Has a very fetid smell. Medicinal.

Black Snake-root.

** Carpel 1, not dehiscent.

2. *A. rubra* Willd.: leaves twice and thrice ternate; raceme hemispherical; petals shorter than the stamens, acute; pedicels of the fruit smaller than the peduncle; berries shining, red, many seeded.—*A. spicata* Mich.—*A. brachypetala* De Cand.—*A. americana*, var. *rubra* Pursh.

HAB. Woods. Can. to Car. May. 2l.—Stem 2 feet high. Flowers white. Berries red and shining.

Red Cohosh.

3. *A. alba* Big.: leaves twice and thrice ternate; raceme oblong; petals equal to the stamens; pedicels of the fruit as large as the peduncle; berries white, few-seeded.—*A. spicata*, var. *alba* Mich.—*A. americana*, var. *alba* Pursh.—*A. pachypoda* Ell.

HAB. Woods. Can. to Car. May. 2l.—Pedicels shorter and thicker than in the preceding. Berries milk-white, tipped with red, smaller than in *A. rubra*.

14. ZANTHORIZA. Linn.

Calyx deciduous, 5-sepalled. *Petals* 5. *Capsule* 2—3 seeded, by abortion 1-seeded. *Pentandria*. *Polygynia*.

Z. apifolia L'Herit.

HAB. Banks of streams. Penn. to Geor. May. 7.—Suffruticose. Root large, yellow. Stem 2—3 feet high. Leaves bipinnate. Flowers in panicles, dark purple.

Yellow Root.

ORDER II. MAGNOLIACEÆ. De Cand. Lind.

Sepals 3—6, deciduous. *Petals* 3—27, hypogynous, in several rows. *Stamens* indefinite, distinct, hypogynous. *Anthers* adnate, long. *Ovaries* numerous, simple, arranged upon the torus above the stamens, 1-celled. *Style* short. *Stigma* simple. *Fruit* either dry or succulent, consisting of numerous carpels, which are arranged upon an elongated axis. *Seeds* solitary or several, attached to the inner edge of the carpels. *Embryo* minute, at the base of a fleshy *albumen*.

Trees or *Shrubs*. *Leaves* alternate, coriaceous. *Flowers* large, solitary, often odoriferous.

1. MAGNOLIA. Linn.

Sepals 5. *Petals* 6—9. *Carpels* 2-valved, 1-seeded, imbricated in a cone. *Seeds* pendulous, arillate.

Polyandria. *Polygynia*.

1. *M. glauca* Linn.: leaves perennial, elliptical, obtuse, petiolate, glaucous beneath; flowers 9—12 petalled; petals obovate, concave.

HAB. Swamps. N. J. to Car. May, June.—A shrub or small tree with whitish bark. *Flowers* solitary, terminal, white, odorous. *Sweet Bay.*

2. *M. acuminata* Linn.: leaves deciduous, oval, acuminate, pubescent beneath; flowers 6—9 petalled; petals obovate, somewhat obtuse.

HAB. Mountains. Penn. to Car. June, July. A middle sized tree, sometimes, however, attaining the height of 70 feet. *Flowers* of a dull yellow colour, about the size of those of *M. glauca*. *Cucumber Tree.*

3. *M. tripetala* Linn.: leaves deciduous, cuneate-lanceolate, acute, silky when young; petals 9, oval-lanceolate, acute, the outer ones reflected.—*M. umbrella* Lam.

HAB. Mountain woods. Penn. to Geor. June.—A small tree with irregular branches and very large leaves and flowers. *Umbrella Tree.*

2. LIRIODENDRON. Linn.

Sepals 3. *Petals* 6. *Carpels* (*Samaræ*) imbricated in a cone, 1—2 seeded, not opening, attenuated.

Polyandria. Polygynia.

L. tulipifera Linn.

HAB. Woods. Throughout the U. S. July. One of the largest trees of our forest. *Leaves* alternate, 3-lobed; the middle lobe truncate. *Flowers* solitary, large, of a dull yellow colour. According to Dr. Darlington there are two varieties of this species, differing chiefly in the colour and texture of the wood; the one being yellow and the other white. The yellow is the most valuable, but both are employed extensively by cabinet makers. The bark is a valuable tonic, &c. See *Big. & Bart. Med. Bot. Dr. P. K. Roger's Inaugural Thesis, Philad. 1802.* Dr. Emmet has found its virtues to reside in a principle which he denominates *liriodendrine*. See *Jour. Phil. Coll. of Phar.*

Tulip Tree. White Wood.

ORDER III. ANONACEÆ. De Cand. Lind.

Sepals 3—4, persistent, usually partly cohering. *Petals* 6, hypogynous, in two rows, coriaceous. *Stamens* indefinite, covering a large hypogynous torus, packed closely together, very rarely definite. *Filaments* short, more or less angular. *Anthers* adnate, turned outwards, with an enlarged 4-cornered connectivum. *Ovaries* mostly numerous. *Styles* short. *Stigmas* simple. *Fruit* consisting of a number of carpels. *Seeds* attached to the suture in one or two rows; *embryo* minute, in the base of a hard, fleshy *albumen*.

Trees or Shrubs. Leaves alternate, simple, almost always entire, without stipules. Flowers usually green or brown.

1. ASIMINA. *De Cand.*

Calyx 3-parted. *Petals* 6, spreading, ovate-oblong; inner ones smallest. *Anthers* many, subsessile. *Berries* usually 3, ovate or oblong, sessile. *Seeds* many.

Polyandria. Polygynia.

A. triloba De Cand.: leaves oblong, crenate, acuminate, and with the branches smoothish; flowers on short peduncles; outer petals roundish ovate, 4 times as long as the calyx.—*Anona triloba Linn.*—*Orchidocarpum arietinum Mich.*—*Porcelia triloba Pursh.*

HAB. Banks of streams. N. Y. to Flor. W. to Miss. April.—
A small tree 15 or 20 feet high. Flowers solitary, dark-brown.
Fruit large, fleshy, eatable, sweetish. *Papaw Tree.*

ORDER IV. MENISPERMACEÆ. *De Cand. Lind.*

Flowers diclinous, usually dioecious and very small. *Sepals* and *petals* confounded in one or several rows, each of which is composed of 3 or 4 parts, hypogynous, deciduous. *Stamens* monodelphous or occasionally distinct, sometimes opposite the petals and equal to them in number, sometimes 3 or 4 times as many. *Anthers* adnate. *Ovaries* sometimes numerous, each with one style, cohering slightly at base, sometimes completely soldered together into a many celled body. *Drupe* mostly berried, 1-seeded, compressed. *Seed* same shape as the fruit; *embryo* curved; *albumen* wanting or small; *cotyledons* flat.

Shrubs, with a flexible tough tissue and sarmentaceous habit. Leaves alternate. Flowers small, usually racemose.

1: MENISPERMUM. *Linn.*

Sepals and *petals* arranged in fours, 2 or 3 rowed. **STERILE FL.** *Stamens* 16—20. **FERTILE FL.** *Ovaries* 2—4. *Drupe* berried, roundish-reniform, 1-seeded.

Dioecia. Monadelphia.

M. Canadense Linn.: leaves peltate, somewhat glabrous, cordate, obtusely angled, mucronate; racemes solitary, compound; petals 8.

HAB. Banks of streams. Can. to Car. July. *h.*—Varies somewhat in the angles of the leaves. Stem climbing. Flowers greenish yellow. Berries black, resembling grapes.

Moon-Seed.

ORDER V. BERBERIDEÆ. *De Cand. Lind.*

Sepals 3—4—6, deciduous, in a double row, surrounded externally by petaloid scales. *Petals* hypogynous, either equal to the sepals in number and opposite to them, or twice as many, generally with an appendage at the base in the inside. *Stamens* equal in number to the petals, and opposite to them; *anthers* generally with two separated cells, opening elastically with a valve from the bottom to the top. *Ovary* solitary, 1-celled; *style* rather lateral; *stigma* orbicular. *Fruit* a berry or capsule. *Seeds* 1, 2 or 3, attached to the bottom of the cell on one side; *cotyledons* flat.

Shrubs or *herbs*. *Leaves* alternate, compound, without stipules.

1. BERBERIS. *Linn.*

Sepals 6. *Petals* 6, with 2 glands upon their claws. *Stamens* without teeth, or with 2—3 teeth. *Berry* 2—3 seeded. *Seeds* 2, rarely 3, inserted laterally at the base of the cell.

Hexandria. Monogynia.

B. vulgaris *Linn.*: spines 3-parted; leaves simple, obovate, attenuate at base, ciliate-serrate; racemes many flowered, pendulous; petals entire.—*B. canadensis* *Pursh. Nutt.*

HAB. Rocky hills. Throughout the U. S. and Can. April, May.

h.—A shrub, 4—6 feet high. *Leaves* alternate. *Flowers* in pendulous racemes, yellow. *Berries* red, of an agreeable acid. Exactly similar to the European plant. *Barberry.*

2. LEONTICE. *Linn.*

Sepals 6, naked without. *Petals* 6, bearing a scale at the base. *Capsule* 2—4 seeded. *Seeds* globose, inserted into the bottom of the capsule.

Hexandria. Monogynia.

L. thalictroides *Linn.*: cauline leaf solitary, bi-tritenate; leaflets 2—3 lobed; flowers paniculate from the centre of the leaves.—*Caulophyllum thalictroides* *Mich.*

HAB. Rocky woods. Throughout the U. S. and Can. April, May. 24.—*Stem* a foot high. *Flowers* small, greenish-yellow. *Berries* deep blue, globose, contracted below into a long stipitate base. Whole plant turns almost black in drying. *Cohosh.*

ORDER VI. PODOPHYLLÆ. *Lind.*

Sepals 3—4, deciduous or persistent. *Petals* in two, three or more rows, each of which is equal in number to the sepals.

Stamens hypogynous, 12—18, arranged in two, three or more rows; *anthers* linear, oval, turned inwards. *Stigma* somewhat peltate. *Fruit* succulent or capsular, 1-celled. *Seeds* indefinite; *embryo* small.

Herbs. *Leaves* broad lobed. *Flowers* radicals, solitary, white.

1. PODOPHYLLUM. Linn.

Sepals 3. *Petals* 6—9. *Stamens* 12—18. *Stigma* large, subsessile, peltate. *Berry* somewhat fleshy, not dehiscent. *Seeds* many. *Polyandria*. *Monogynia*.

P. peltatum Linn.: stem erect, 2-leaved, 1-flowered; fruit ovate.

HAB. Woods. Throughout the U. S. and Can. May. 24.—

Stem a foot high, 2-leaved, 1-flowered. *Leaves* large, peltate, lobed. *Flowers* solitary, white, pendulous. *Fruit* large, ovate, crowned with the persistent stigma. Known under the name of *May-apple*. Its root is often used as a substitute for jalap. See *Big. & Bart. Med. Bot. and Schneck's Exper. Inq. &c.* N. Y. *Med. & Phys. Jour.* ii. 30.

2. JEFFERSONIA. Bart.

Sepals 4. *Petals* 8. *Capsule* obovate, semicircularly dehiscent. *Seeds* many, arillate at base.

Octandria. *Monogynia*.

J. diphylla Pers.:—*J. bartonis* Mich.

HAB. N. Y. Penn. Virg. and Tenn. May. 24.—*Scape* a foot high. *Leaf* binnate, petioled. *Flower* terminal, solitary, large, white, resembling that of *Sanguinaria*. *Capsule* large, coriaceous. *Seeds* shining, oblong.

ORDER VII. HYDROPELTIDÆ. Lind.

Sepals 3 or 4, coloured inside. *Petals* 3 or 4, alternate with the sepals. *Stamens* definite or indefinite, hypogynous, arising from an obscure torus; *anthers* linear, turned inwards, continuous with the filament. *Ovaries* 2 or more. *Fruit* indehiscent, tipped by the indurated style. *Seeds* definite, pendulous; *embryo* seated at the base of a fleshy *albumen*.

Aquatics, with floating leaves. *Flowers* axillary, solitary, yellow or purple.

1. HYDROPELTIS. Mich.

Calyx of 3—4 sepals. *Petals* 3—4. *Stamens* 18—36. *Ovaries* 6—18. *Seeds* pendulous, ovate-globose.

Polyandria. *Polygynia*.

H. purpurea Mich.—*Brasenia peltata* Pursh.—*B. hydropeltis* Torr.

HAB. Lakes and ponds. Can. to Geor. July, Aug. 2f.—

Whole plant covered with a viscid gelatine. *Stem* floating, long, terete, branched. *Leaves* oval, peltate, coriaceous, very entire and tinged with purple. *Peduncles* solitary, long, each springing from the side of a petiole. *Flowers* purple.

Water-Target.

2. FLCKERIA. Willd.

Calyx of 3 sepals. *Petals* 3, shorter than the sepals. *Style* bifid. *Pericarp* none. *Seeds* 2 or 3, membraceously coated, superior. *Hexandria. Monogynia.*

F. uliginosa Muhl.—*F. palustris* Nutt.—*Nectris pinnata* Pursh.

HAB. Marshes. Ver. to Virg. April, May. ☉.—*Stem* decumbent, terete, slender, smooth. *Leaves* somewhat succulent, alternate, trifid and pinnatifid, with a long petiole. *Peduncles* axillary, gradually lengthening. *Flowers* small, white. Dr. Torrey, in his valuable catalogue of North American plants, appended to the American edition of Lindley's Introduction to the Natural System of Botany, places this genus with a mark of doubt, under the present order. I have followed his suggestion, although it is by no means certain that this is its true place. Further examination may prove that it belongs to some other order, or what is more probable, that it should be the type of a new one.

False Mermaid.

ORDER VIII. NYMPHÆACEÆ. De Cand.

Sepals and *petals* numerous, imbricated, passing gradually into each other. *Stamens* numerous, sometimes forming with the combined petals, a superior monopetalous corol; *filaments* petaloid; *anthers* turned inwards, adnate. *Fruit* many-celled, indehiscent. *Seeds* very numerous. *Embryo* small, on the outside of the base of the *albumen*.

Herbs, with peltate or cordate fleshy leaves arising from a prostrate trunk, growing in quiet waters.

1. NELUMBIUM. Juss.

Calyx petaloid, of 4—6 sepals. *Petals* numerous. *Carpels* numerous, deeply immersed in the upper surface of a turbinate *receptacle* or *torus*, 1-seeded. *Seed* large, round, solitary. *Polyandria. Polygynia.*

N. luteum Willd.: corol, many petalled; anthers produced into a linear appendage at the extremity; leaves peltate, orbicular, very entire. —*Cyamus flavicomus* Salisb. Pursh.—*C. luteus* Nutt.

HAB. Lakes. N. Y. to S. Car. W. to Miss. July. 2f.—*Leaves* alternate, peltate. *Peduncles* very long, more or less scabrous.

Flowers yellowish-white and larger than that produced by any other plant in North America, except *Magnolia macrophylla*.

Water Chinquepin.

2. NYMPHÆA. Linn.

Sepals at the base of the disk. *Petals* and *stamens* connected with the whole of the disk, which covers the *carpels*.

Polyandria. Monogynia.

N. odorata Ait.: leaves floating, orbicular-cordate, very entire; nerves and veins prominent; calyx 4-leaved, equal to the petals; stigma 16—20 rayed; rays erect, inflexed at the apex.—*N. alba* Walt. Mich.

HAB. Ponds. Can. to Car. June, July. 2l.—Leaves on very long petioles. *Flowers* large, white, odorous. *N. minor* of De Candolle is probably only a variety of this species. *Pond Lily.*

3. NUPHAR. Smith.

Sepals, petals and *stamens* inserted at the base of the disk.

Polyandria. Monogynia.

1. *N. lutea* Smith: calyx with 5 sepals; stigma entire, 16—20 rayed, deeply umbilicate; leaves cordate, oval, lobes approximate; petioles 3-sided, acute-angled.—*Nymphæa lutea* Linn.

HAB. In water. N. S. and N. to lat. 64°. June. 2l.—*Sepals* very obtuse. *Petals* much smaller, truncate. Confounded by some of our botanists with the next species, from which it is quite distinct.

2. *N. advena* Ait.: calyx 6-leaved; petals numerous, small; leaves cordate, with divaricate lobes; petioles semicylindrical; fruit sulcate.—*Nymphæa advena* Mich.

HAB. In water. Can. to Car. June, July. 2l.—Leaves upright or floating. *Flowers* large, yellow. *Yellow Water Lily.*

3. *N. kalmiana* Ait.: calyx 5-leaved; stigmas incised, 8—12 rayed; leaves cordate, submersed, with approximate lobes; petioles terete.—*Nymphæa lutea*, var. *kalmiana* Mich.

HAB. In water. N. S. and Can. July, Aug. 2l.—Leaves and flowers small. *Kalm's Water Lily.*

ORDER IX. PAPAVERACEÆ. De Cand. Lind.

Sepals 2, deciduous. *Petals* hypogynous, either 4, or some multiple of that number placed in a cruciate manner. *Stamens* either 8, or some multiple of 4, generally very numerous. *Ovary* 1. *Style* short or none. *Stigmas* 2 or many. *Fruit* 1-celled, either pod-shaped, with 2 parietal placentæ, or capsular, with several placentæ. *Seeds* numerous. *Embryo* minute, in the base of a fleshy *albumen*.

Herbs or shrubs, with a milky juice. Leaves alternate, more or less divided. Peduncles long, 1-flowered.

1. ARGEMONE. Linn.

Petals 4—6. Stamens many. Style scarcely any. Stigmas 4—7, radiating, concave, free. Capsule obovate, 1-celled; valves dehiscent at the apex. Seeds spherical.

Polyandria. Monogynia.

A. mexicana Linn.

HAB. Banks of streams. Penn. to Flor. W. to Miss. July. ☉.

—*Stem 2—3 feet high, branching, armed with prickles. Leaves sessile, pinnatifid, repand-sinuate, margins and veins beneath armed with spines. Flowers axillary and terminal, large, yellow or white. Prickly Poppy.*

2. SANGUINARIA. Linn.

Sepals 2, deciduous. Petals 8—12. Stamens 24. Stigmas 2. Capsule oblong, 2-valved, ventricose; valves deciduous.

Polyandria. Monogynia.

S. canadensis Linn.

HAB. Woods. Throughout the U. S. and Can. April, May.

2f.—*Root tuberous, affording a bitter orange coloured juice, which contains a vegeto-alkaline principle. Leaves radical, reniform or cordate. Flowers large, white, solitary. Medicinal. Emetic, &c. Big. Med. Bot. i. 75. Tully on Sanguinaria. Am. Med. Recorder, vol. xiii. Blood Root.*

3. MECONOPSIS. De Cand.

Petals 4. Stamens many. Style short. Stigmas 4—6, radiating, convex, free. Capsule obovate, 1-celled; valves 4—6, dehiscent at the apex.

Polyandria. Monogynia.

M. diphylla De Cand.: leaves 2, sessile, hairy; lobes rounded and obtuse; capsules 4-valved, echinate.—*Chelidonium diphylum* Mich. Pursh.—*Stylophorum diphylum* Nutt.

HAB. Woods. Penn. to Ill. May. 2f.—*Stem a foot high.*

Leaves glaucous. Flowers yellow. Abundant in Indiana.

4. CHELIDONIUM. Linn.

Sepals 2, glabrous. Petals 4. Stamens many. Capsule elongated, 2-valved, 1-celled; valves dehiscent from the base to the apex. Seeds several, furnished with a glandular crest.

Polyandria. Monogynia.

C. majus Linn.: leaves pinnate, glaucous; leaflets roundish, dentate-lobed; umbels axillary, pedunculate; petals elliptic, entire.

HAB. Fields. N. S. May—Oct. 2l.—Stem 12—18 inches high. Flowers yellow. Plant full of an orange juice. Probably introduced. *Celadine.*

ORDER. X. SARRACENIÆ. Hook. Lind.

Sepals 5, persistent, often having a 3-leaved involucre on the outside ; *æstivation* imbricate. *Petals* 5, hypogynous ; unguiculate, concave. *Stamens* indefinite, hypogynous ; *anthers* oblong, adnate, 2-celled, bursting internally and longitudinally. *Ovary* superior, 5-celled ; *style* single ; *stigma* much dilated, peltate, with 5 angles. *Capsule* crowned by the persistent stigma, with 5 cells and 5 loculicidal valves. *Seeds* very numerous, minute, slightly warted, covering 5 large placenta, which project from the axis into the cavity of the cells ; *albumen* abundant ; *embryo* cylindrical, lying near the base of the seed, with the *radicle* turned to the *hilum*.

Herbs found in bogs. *Roots* fibrous. *Leaves* radical with a hollow urn-shaped petiole, at the apex of which is articulated the lamina, which covers the petiole like a lid. *Scapes* having each one large flower.

1. SARRACENIA. Linn.

Sepals 5, with a 3-leaved involucre. *Petals* 5. *Capsule* 5-celled. *Style* with a clypeate stigma.

Polyandria. Monogynia.

S. purpurea Linn. : leaves much shorter than the scape, inflated, contracted at the mouth, having a broad arched lateral wing ; appendix erect, broad-cordate, undulate, not mucronate.

HAB. Sphagnous swamps. Can. to Car. June, July. 2l.—

Scape 1—2 feet high, with a solitary terminal purple flower.

Side-saddle Flower.

ORDER XI. FUMARIACEÆ. De Cand. Lind.

Sepals 2, deciduous. *Petals* 4, cruciate, parallel ; the two outer, either one or both, saccate at the base ; the 2 inner callous and coloured at the apex, where they cohere and enclose the anthers and stigma. *Stamens* 6, in two parcels opposite the outer petals, very seldom all separate ; *anthers* membranous. *Ovary* superior, 1-celled ; *style* filiform ; *stigma* with two or more points. *Fruit* either an indehiscent 1 or 2 seed-

ed nut, or a 2-valved many seeded pod. *Seeds* horizontal. *Albumen* fleshy. *Embryo* minute.

Herbs with brittle stems and a watery juice. *Leaves* usually alternate, many-cleft, often with tendrils. *Flowers* purple, white or yellow.

1. FUMARIA. Linn.

Calyx of 2 sepals. *Petals* 4, one gibbous or spurred at the base. *Pouch* ovate or globose, 1-seeded, indehiscent, not pointed with a style. *Diadelphia. Hexandria.*

F. officinalis Linn.: stem suberect; leaves bipinnate and cleft, with linear segments; racemes rather loose; fruit-bearing pedicels erect, twice as long as the bracts; pouch globose, smooth, somewhat retuse.

HAB. Sandy fields. N. S. July, Aug. ☉.—*Stem* a foot high. *Flowers* rose-coloured. Introduced. *Fumitory.*

2. DICLYTRA. De Cand.

Petals 4, 2 outer ones equally spurred or gibbous at base. *Pod* 2-valved, many-seeded. *Diadelphia. Hexandria.*

1. *D. cucullaria* De Cand.: scape naked; raceme simple, 1-sided; spurs straight, divaricate, acute; leaves 2, decompose.—*Fumaria cucullaria* Linn.—*Corydalis cucullaria* Pers.

HAB. Shady hills. Throughout Can. and N. S. W. to Miss. May. 2f.—*Root* bulbous. *Scape* 6—8 inches high. *Flowers* large, yellowish-white. The spurs are frequently much divaricated. *Dutchman's Breeches.*

2. *D. formosa* De Cand.: scape naked; raceme somewhat compound, many-flowered, nodding; segments of the leaves oblong, incisely-pinnatifid; spurs slightly curved, obtuse; stigmas 2-angled.—*Corydalis formosa* Pursh.

HAB. Hills. Can. and N. S. May. 2f.—*Root* bulbous. *Flowers* rose-coloured.

3. *D. eximia* De Cand.: scape naked, simple, few-flowered; leaves bipinnate; segments linear, glaucous beneath; spurs 2, short, obtuse; stigma 4-angled.—*D. formosa* Ell.?—*D. Canadensis* De Cand.—*Corydalis canadensis* Goldie.

HAB. Can. to Car. May. 2f.—*Scape* 6—8 inches high. *Flowers* purplish-red, 4—6 in a raceme. Closely allied to *D. formosa*, but may be distinguished by its stigma. The root also is tuberous and not bulbous.

3. CORYDALIS. De Cand.

Petals 4, one spurred at base. *Pod* 2-valved, compressed, many-seeded. *Diadelphia. Hexandria.*

1. *C. glauca* Pursh: stem erect, branched; leaves glaucous, decom-pound; segments cuneate, trifid; bracts oblong-acute, shorter than the pedicels; pod linear, flat, scarcely torulose.—*Fumaria glauca* Curtis.

HAB. N. S. and Can. N. to 64°. May—July. ☉.—Stem 12—15 inches high. Flowers variegated with red, yellow and green.

2. *C. aurea* Willd.: stem branched, diffuse; leaves glaucous, doubly pinnate, lobes oblong-linear; bracts linear-lanceolate, acuminate, toothed, longer than the pedicels; pod terete, torulose.—*Fumaria aurea* Muhl.

HAB. Shady rocks. Throughout Can. and N. to lat. 64°. W. to Rocky mountains, and S. to S. Car. June. ☉.—Stem 8—12 inches high, branching. Racemes opposite the leaves. Flowers small, bright yellow.

4. ADLUMIA. Raf.

Petals 4, united in a spongy monopetalous corol, persistent, and with two protuberances at base. *Pod* 2-valved, many-seeded. *Diadelphia. Hexandria.*

A. cirrhosa Raf.:—*Corydalis fungosa* Pers.—*Fumaria fungosa* Willd.—*F. recta* Mich.

HAB. Woods. Can. to Penn. Catskill mountains. July. ♂.
—Stems climbing. Leaves decom-pound, furnished with tendrils. Flowers numerous, in axillary racemes, pale red.

ORDER XII. CRUCIFERÆ. De Cand. Lind.

Sepals 4, deciduous, cruciate. *Petals* 4, cruciate, alternate with the sepals. *Stamens* 6, of which two are shorter, solitary and opposite the lateral sepals, and four longer, in pairs, opposite the anterior, and posterior sepals. *Disk* with various green glands between the petals and the stamens and ovary. *Ovary* superior, 1-celled. *Stigmas* 2. *Fruit* a silicule or silique (pouch or pod,) rarely 1-celled and valveless, generally 2-celled and 2-valved, 1 or many-seeded, indehiscent or opening by the two valves. *Seeds* attached in a single row by a cord to each of the placentæ, generally pendulous. *Albumen* none. *Embryo* with the radical folded upon the cotyledons.

Herbs. Leaves alternate. *Flowers* usually yellow or white, rarely purple.

Div. I. SILICULOSÆ.

1. CAKILE. Linn.

Pouch 2-jointed, compressed ; the upper joint ensiform or ovate. *Seed* solitary in the cells ; upper erect, lower pendulous. *Tetradynamia. Siliculosa.*

C. americana Nutt. : leaves fleshy, oblong, obtuse, with the margins toothed ; joints of the pouch 1-seeded ; the uppermost one ovate, acute.—*C. maritima*, var. *americana* Torr.—*Bunias maritima* Pursh—*B. edentula* Big.

HAB. Sea coast. N. S. Shores of the great Northern lakes, Nutt. July—Oct. ☉.—*Plant* fleshy, branched and decumbent. *Flowers* purple, corymbed. *American Sea Rocket.*

2. THLASPI. Linn.

Pouch emarginate at the apex ; *valves* boat-form, winged on the back ; *cells* 2—many seeded. *Petals* equal. *Calyx* equal at base. *Tetradynamia. Siliculosa.*

1. *T. arvense* Linn. : leaves oblong-sagittate, coarsely toothed, smooth ; pouch suborbicular, shorter than the pedicel ; its wings dilated longitudinally.

HAB. Stony fields. Can. and N. S. W. to Miss. June. ☉.—*Stem* a foot high, erect, somewhat branched. *Leaves* smooth. *Flowers* small, white, in a raceme. *Pouch* very large, with dilated wings. *Penny-cress.*

2. *T. tuberosum* Nutt. : leaves rhombic-ovate, obsolete toothed, smooth, sessile ; radical ones upon long petioles ; stem pubescent, very short and simple ; root tuberous ; pouch orbicular.

HAB. Penn. Nutt. April, May. ☉.—*Stem* 4—5 inches high. *Flowers* large, rosaceous.

3. CAPSELLA. De Cand.

Pouch triangular, wedgeform at base ; *valves* boat-form, not winged ; *cells* many-seeded. *Tetradynamia. Siliculosa.*

C. pursa-pastoris De Cand. ; radical leaves pinnatifid.

HAB. Cultivated grounds. Throughout the U. S. April—Oct. ☉.—*Stem* 6—12 inches high. *Radical leaves* pinnatifid, hairy ; cauline ones oblong, toothed, sagittate at base. *Flowers* white, in terminal spiked racemes. *Shepherd's Purse.*

4. ALYSSUM. De Cand.

Pouch orbicular or elliptic ; *valves* flat, or convex in the centre. *Seeds* 2—4 in each cell, compressed, sometimes sur-

rounded by a membranous wing. *Calyx* equal at base. *Petals* entire. *Stamens* somewhat toothed.

Tetradynamia. Siliculosa.

A? dentatum Nutt. : stem erect and herbaceous ; radical leaves subbruncinately toothed and somewhat scabrous ; cauline ones linear-lanceolate, sessile, nearly smooth ; racemes paniculate ; pouch elliptical, compressed, pubescent, contorted, terminating in a style near its own length, shorter than the pedicel.—*Draba arabisans Pursh*, not of *Mich.* (*Nutt.*).

HAB. Rocks. N. S. ? May. 24.—Stem 6 inches high. This plant is probably not a native of the northern section of the U. S.

5. DRABA. Linn.

Pouch sessile, oval or oblong ; *valves* flat or convex. *Seeds* many, not margined. *Calyx* equal. *Petals* entire. *Stamens* without teeth.
Tetradynamia. Siliculosa.

1. *D. caroliniana Walt.* : stem leafy at the base, hispid, naked and smooth at the top ; leaves ovate-roundish, entire, hispid ; pouch linear, smooth, longer than the pedicels.—*D. hispidula Mich.*

HAB. Fields. Penn. to Geor. W. to Miss. April. ☉.—Stem 2—4 inches high. *Leaves* clustered on the lower part of the stem, very hairy. *Pouch* 1-2 an inch long, linear-lanceolate. *Flowers* white.

2. *D. arabisans Mich.* : stem leafy, somewhat branched, subpubescent ; leaves lanceolate, acute, toothed ; pouch linear, smooth, longer than the pedicel.

HAB. Rocks. Can. to Virg. W. to Miss. May, June. ♂.—*Pouch* 5—6 lines long, erect, acuminate, twisted. *Flowers* white.

6. EROPHILA. De Cand.

Pouch oval or oblong ; *valves* flat. *Seeds* many, not margined. *Calyx* equal. *Petals* 2-parted. *Stamens* without teeth.
Tetradynamia. Siliculosa.

E. vulgaris De Cand. : pouch elliptic, shorter than the pedicel ; scape 5—15 flowered.—*E. americana De Cand. ?—D. verna Pursh. Nutt.*

HAB. Fields. Can. to Virg. March—May. ☉.—Scape 2—6 inches high. *Leaves* lanceolate, subincised, hairy. *Flowers* white. Specimens of this plant obtained from my friend, Dr. Matthew Stevenson, of Washington co. N. Y. agree in all respects with the foreign *E. vulgaris*, as do also those which I have collected elsewhere. Whether *E. americana* of De Candolle is a mere variety of this, I have no means of determining ; but I think there can be no doubt that *Draba caroliniana* (*D. hispidula Mich.*) is entirely distinct from the present plant.

Willow Grass.

7. COCHLEARIA. Linn.

Pouch sessile, ovate, globose or oblong ; *valves* ventricose. *Seeds* many, not margined. *Calyx* equal, spreading. *Petals* entire. *Stamens* without teeth. *Tetradynamia*. *Siliculosa*.

C. armoracea Linn. : root large, fleshy ; radical leaves oblong-crenate ; cauline ones long-lanceolate, toothed or incised ; pouch elliptical.

HAB. Waste grounds. June. 2f.—Root large and very pungent to the taste. Stem 2 feet high. Flowers white, in elongated racemes. Introduced. Horse Radish.

8. LEPIDIUM. Linn.

Pouch ovate or somewhat cordate ; *valves* keeled or rarely ventricose, dehiscent ; *cells* 1-seeded. *Seeds* somewhat triquetrous or compressed. *Tetradynamia*. *Siliculosa*.

1. *L. virginicum* Linn. : stem branched ; radical leaves pinnatifid ; stem leaves linear-lanceolate, serrate, smooth ; flowers with 4 petals and 2—4 stamens ; pouch orbicular, flat, emarginate, shorter than the pedicel.—*Thlaspi virginianum* Poir.

HAB. Sandy fields. Can. to Geor. W. to Miss. June—Oct. ☼.—Stem a foot high, paniced above. Flowers minute, white. Closely resembles *L. ruderale*, but the cotyledons are accumbent. Hooker. Wild Pepper-grass.

2. *L. campestre* Brown : cauline leaves sagittate, toothed ; pouch ovate, winged, emarginate, scaly-punctate.—*Thlaspi campestre* Linn.

HAB. Hills. N. May. ☼.—Stem a foot high, erect. Leaves pubescent. Flowers white. Field Pepper-grass.

3. *L. hirtum* Smith : pouch ovate, winged, emarginate, hirsute ; cauline leaves sagittate, villose, sub-dentate.

HAB. Fields, near New-Brunswick, N. J. June. ♂.—Stem 12—18 inches high, very leafy. Lower leaves petioled, and somewhat pinnatifid ; stem leaves sub-clasping, sagittate, toothed, covered with a whitish pubescence. Flowers in dense hairy racemes. Pouch, in my specimens, scabrous, emarginate, with a style about half its length.—Perhaps introduced.

Hairy Field Pepper-grass.

9. CAMELINA. Crantz.

Pouch obovate or subglobose ; *valves* ventricose, dehiscent with part of the style ; *cells* many seeded. *Style* filiform. *Seeds* oblong, not margined. *Tetradynamia*. *Siliculosa*.

C. sativa De Cand. : pouch obovate-pyriform, margined, tipped with the pointed style ; leaves roughish, subentire, lanceolate, sagittate ; flowers numerous, in corymbs.—*Myagrum sativum* Linn.

HAB. Cultivated grounds. Penn. June. ☉.—Stem about 2 feet high, branched above. Flowers numerous, in corymbs, small, yellow. Pouch on a long pedicel. Introduced.

Gold of Pleasure.

10. SUBULARIA. Linn.

Pouch oval; dissepiment elliptical; valves convex; cells many seeded. Stigma sessile. Cotyledons incumbent, linear, 2-plicate. Tetradynamia. Siliculosa.

S. aquatica Linn.

HAB. Margins of ponds. N. S. July. ☉.—Scape 1—2 inches high. Radical leaves entire, subulate 10 lines long. Flowers white, in corymbs. Acl-wort.

11. LUNARIA. Linn.

Pouch pedicellate, elliptic or lanceolate; valves flat. Funicles long, adhering to the dissepiment. Calyx somewhat bisaccate. Petals nearly entire. Stamens not toothed.

Tetradynamia. Siliculosa.

L. biennis De Cand. : pouch elliptical, obtuse at each end.

HAB. Fields. Penn. May, June. ♂.—Naturalized near Philadelphia. Nutt.

DIV. II. SILIQUOSÆ.

12. DENTARIA. Linn.

Pod lanceolate; valves flat, nerveless, often opening elastically. Seeds ovate, not margined, in one row.

Tetradynamia. Siliquosa.

1. *D. laciniata* Muhl. : leaves in threes, verticillate, on short petioles, ternate; leaflets 3-parted; segments linear, entire, or coarsely toothed; root moniliform.—*D. concatenata* Mich.

HAB. Woods. Throughout the U. S. but rather rare. April, May. 2f.—Stem 8 inches high. Flowers in terminal racemes, pale rose coloured or nearly white. Petals oblong.

2. *D. diphylla* Mich. : leaves mostly 2, on short petioles, ternate; leaflets ovate-oblong, unequally and coarsely serrate or lacinate.

HAB. Woods. Throughout Can. and U. S. May. 2f.—Stem 6—10 inches high. Leaves large. Flowers white, larger than the preceding. Toothwort.

3. *D. heterophylla* Nutt. : stem 2-leaved; leaves ternate, petiolate; leaflets linear, sub-lanceolate, acute, entire, margin rough ciliate; radical leaflets ovate-oblong, incisely and coarsely toothed.

HAB. Woods. Penn. June. 2f.—Root tuberous. Corymb about 9-flowered. Flowers pale purple, about the size of those of *Cardamine pratensis*.—The smallest of the genus.

4. *D. maxima* Nutt. : leaves many, alternate, on long petioles, ternate ; leaflets sub-oval, incisely and acutely toothed, lateral ones lobed ; axils naked ; racemes lateral and terminal.

HAB. Woods. N. Y. and Penn. June. 2f.—Stem 18—20 inches high. Leaves 5—7 ; leaflets broad. Flowers in racemes, purple.

13. BARBAREA. *Brown.*

Pod 4-sided, 2-edged ; *valves* awnless at the apex, concave-carinate. *Calyx* equal at base.

Tetradynamia. Siliquosa.

B. vulgaris Brown : lower leaves lyrate, the terminal lobes roundish ; upper ones sessile, obovate, toothed ; pod 4-sided, tapering into a slender style.—*Erysimum barbarea* Linn.

HAB. Fields. N. S. and N. to the Arctic regions. June. 2f.—Stem 12—18 inches high, smooth. Flowers small, yellow, corymbed.—According to Dr. Hooker the best character between this species and *B. præcox* is in the pod, which is here scarcely more than an inch long and tapers into a long slender style.

Bitter Winter-cress.

14. ARABIS. *Linn.*

Pod linear ; *valves* flat, 1-nerved in the middle. *Seeds* in one row in each cell, oval or orbicular, compressed. *Cotyledons* flat, accumbent.

Tetradynamia. Siliquosa.

1. *A. sagittata* De Cand. ; leaves subdentate, rough, with the pubescence often branched ; radical ones ovate or oblong, attenuated into a petiole ; those of the stem lanceolate, sagittate-cordate ; pedicels of the length of the calyx ; pods stiffly erect.

c. ovata De Cand. : leaves rough ; radical ones ovate, toothed ; cauline ones clasping.—*A. ovata* Poir.—*Turritis ovata* Pursh.

d. oblongata De Cand. : leaves rough ; radical ones ovate-oblong, toothed ; cauline ones sagittate-amplexicaul.—*Turritis oblongata* Raf.

HAB. Rocks. N. S. N. to Arctic America. ♂.—Stem 12—18 inches high, simple. Flowers small, white. A very variable plant.

2. *A. hirsuta* De Cand. : leaves dentate, pubescent or scabrous ; radical ones obovate-oblong, tapering into a petiole ; cauline ones ovate-lanceolate ; pedicels as long as the calyx ; pod erect.—*Turritis hirsuta* Jacq.

HAB. Conn. June. ♂.—Stem 6—12 inches high, hairy. Flowers small, white. A specimen of this plant, gathered in Connecticut by Dr. Robbins, agrees very well with the foreign one, from which it seems to me our *A. sagittata* is quite distinct.

Hairy Tower Mustard.

3. *A. thaliana* Linn. : stem branched ; leaves subdentate, pilose ; the radical ones petiolate, ovate-oblong ; cauline ones few, sessile ;

stamens as long as the petals ; pod suberect, on longish pedicels, slender.

HAB. Dry hills. N. S. April, May. ♂.—Stem 2—8 inches high. Flowers in a corymb, white. Common Wall-cress.

4. *A. lyrata* Linn. : stem somewhat branched, hairy at base ; radical leaves lyrate-pinnatifid, often pilose ; those of the stem linear and smooth ; pedicels somewhat spreading ; pod erect.

HAB. Fields and hills. Throughout the N. S. and Can. and W. to Rocky mountains. April, June. ♂.—Stem 8—12 inches high. Flowers large, white. Dr. Hooker supposes this plant to be identical with the European *A. petraea*.

5. *A. lævigata* De Cand. : erect, glabrous and glaucous ; radical leaves, obovate, petioled, sinuate-dentate ; stem leaves linear, sessile, very entire ; pod erect ; seeds margined.—*Turritis lævigata* Willd.

HAB. Rocky places. N. S. May. ♀.—Stem a foot to 18 inches high. Flowers few, small, in corymbled racemes. Pod 2 inches long, linear, quite erect, tapering at the extremity into a very short style.

6. *A. canadensis* Linn. : stem leaves sessile, oblong-lanceolate, acuminate, somewhat toothed ; pedicels thrice as long as the calyx, pubescent, reflexed in the fruit ; pod pendulous, subfalcate, nerved ; seeds with a broad wing.—*A. falcata* Mich. Pursh.—*A. mollis* Raf.

HAB. Rocky situations. Can. to Geor. June. ♀.—Stem 1—2 feet high. Flowers white, in long terminal racemes. Pods very long. Sickly Pod.

15. CARDAMINE. Linn.

Pod linear ; *valves* flat, nerveless, often opening elastically. *Seeds* ovate, not margined ; funicle of the hilum slender. *Tetradynamia. Siliquosa.*

* *Leaves undivided.*

1. *C. rhomboidea* De Cand. : root tuberous ; leaves ovate-rhomboid, obscurely repand-toothed, smooth, lower ones on long petioles.—*Arabis rhomboidea* Pursh. Pers.

HAB. Low grounds. From Hudson's Bay to S. Car. and W. to the Rocky mountains. May, June. ♀.—Stem 6—12 inches high, erect, smooth, simple. Flowers in terminal racemes, large white.

2. *C. rotundifolia* Mich. : root fibrous ; leaves suborbicular, subdentate, smooth, petioled ; stem weak, procumbent ; pod spreading, slender, with a long style.

HAB. Wet grounds. N. S. July. ♀.—Stem 12—15 inches high. Flowers small, white. Dr. Hooker considers the two preceding plants identical ; but Dr. Darlington, who has examined this point with much care, has designated the characters by which they are distinguished. The roots of *C. rotundifolia* are constantly fibrous, while those of *C. rhomboidea* are tuberous ; the flowers of the former are not more than half the size of th

latter; the stigma is simple and very small, on a tapering style, nearly a line in length; neither is the plant so acrid, being rather bitter to the taste. See *Darlington's Florula Cestrica*, and his paper in *Sill. Amer. Jour.* xvii. 356.

3. *C. bellidifolia* Linn.: leaves glabrous, somewhat fleshy; radical ones petioled, ovate, entire; cauline ones few, entire, or somewhat 3-lobed; pod erect; stigma subsessile.—*C. rotundifolia*? Big.

HAB. Highest summit of the White mountains, Rocky mountains, and throughout Arctic America. July. 2f.—I received a specimen of this plant from my friend Dr. Charles Pickering of Philadelphia, who obtained it from the first named locality. The stem is simple and apparently procumbent, 4—5 inches long. Lower leaves 1-2—3-4 of an inch in length, ovate or sub-orbicular, on long slender petioles. Pod an inch long, surmounted by a short style. It is very near *C. alpina*.

** *Leaves divided.*

4. *C. pratensis* Linn.: leaves pinnate; leaflets of the radical ones roundish, of the cauline ones linear or lanceolate, entire; flowers large, in a terminal corymb; style very short, nearly as thick as the pod; stigma capitate.

HAB. Woods. N. S. and throughout Arctic America. June. 2f.—Stem 10—12 inches high. Flowers purplish, large. Pod linear, nearly an inch long. This species can be readily distinguished by its large flowers and thick style.

5. *C. hirsuta* Linn.; leaves pinnate; leaflets of the radical ones petiol- ed, mostly rounded; of the cauline ones lanceolate, subpetioled, dentate or very entire; petals small, oblong-cuneate; stigma minute, subses- sile.—*C. pennsylvanica* Muhl. De Cand.—*C. virginiana* Linn.

HAB. Wet grounds. Throughout the U. S. and Can. July. 2f. —I adopt the views of Dr. Hooker concerning this species. I have never been able to ascertain the specific line between the *C. pennsylvanica* and *C. virginica* of American botanists; hav- ing seen every variety in the size, form of the leaves, and direc- tion of the stem, of these supposed distinct plants. The present species is very extensively distributed. *American Water-cress.*

6. *C. teres* Mich.: leaves sublyrate-pinnatifid, segments oval-oblong, the terminal one somewhat 3-lobed; pod short, erect, terete.

HAB. Low grounds. N. Eng. to N. J. Pursh. June, July. 2f.—De Candolle thinks this may belong to his genus *Nastur- tium*.

16. NASTURTIIUM. Brown.

Pod rounded (sometimes short.) *Stigma* sub-2-lobed. *Valves* concave, nerveless, not keeled. *Cotyledons* accumbent. *Calyx* spreading. *Tetradynamia. Siliquosa.*

1. *N. officinale* Brown: leaves pinnate; leaflets ovate, subcordate, sinuate-dentate; upper ones pinnatifid.—*Sisymbrium Nasturtium* Linn.

HAB. In water. Throughout the U. S. and to the N. W. coast. June, July. 2l.—*Stem* decumbent, floating. *Leaves* large. *Flowers* white, corymbd. *Pod* scarcely an inch long. Esteemed as a salad. *Water-cress*.

2. *N. palustre* De Cand. : leaves lyrate-pinnatifid ; lobes confluent, unequally toothed, smooth ; petals as long as the calyx ; pod obtuse at both ends, turgid ; root fusiform.—*Sisymbrium palustre* Willd. Pursh.

HAB. Wet places. Throughout the U. S. and to the shores of the Arctic sea. July. ③.—*Stem* 18 inches high, mostly erect. *Leaves* glabrous, all more or less pinnatifid. *Flowers* numerous, minute, yellow. *Pod* short.

3. *N. amphibium* Brown : leaves oblong-lanceolate, lyrate-pinnatifid or serrate ; root fibrous ; petals longer than the calyx ; pod elliptical, tipped with the mucronate style.—*Sisymbrium amphibium* Linn.

HAB. Wet places. Throughout the U. S. and Can. June, July. 2l.—*Stem* 1—2 feet high. *Flowers* yellow, minute, in a long raceme. Very variable in the character of its leaves.

4. *N. natans* De Cand. : emerged leaves lanceolate, entire, serrate ; immersed ones doubly tripinnatifid ; segments capillaceous ; pouch obovate-globose, with a style equal in length.

HAB. In water. Near Montreal. Hook. Oneida Lake. Dr. Asa Gray. July. 2l.—*Stems* long, submerged. *Lower leaves* finely divided ; middle ones often pinnatifid ; emerged ones lanceolate, undivided, serrate. *Flowers* very pale yellow, smaller than in the preceding.

17. HESPERIS. Linn.

Pod roundish, or about 4 cornered. *Stigmas* 2, erect, connivent. *Calyx* bisaccate at base. *Seeds* somewhat 3-sided. *Stamens* without teeth. *Tetradynamia. Siliquosa.*

1. *H. matronalis* Linn. : pedicels of the length of the calyx ; petals obovate ; pod erect, torose, glabrous, not thickened on the margin ; leaves ovate-lanceolate, toothed ; stem erect, nearly simple.

HAB. Shores of Lake Huron. Hook. *Dame's Violet.*

2. *H. ? pinnatifida* Mich. : lower leaves lyrate-pinnatifid ; upper ones lanceolate, unequally serrate ; border of the petals obovate, entire ; pedicels at length longer than the calyx.

HAB. Woods. N. S. Torr. W. to Ken. July. 2l.—*Stem* a foot high, very smooth. *Flowers* pale purple, small.

18. SISYMBRIUM. All.

Pod roundish, sessile upon the torus. *Stigmas* 2, somewhat distinct, or connate in a head. *Calyx* equal at base. *Seeds* ovate or oblong. *Cotyledons* flat, incumbent, sometimes oblique. *Stamens* without teeth.

Tetradynamia. Siliquosa.

1. *S. officinale* De Cand. : leaves runcinate and with the stem hairy ; flowers in a long raceme ; pod subulate, pressed to the rachis.—*Erysimum officinale* Linn.

HAB. Road sides. Throughout the U. S. and Can. W. to Columbia river. June—Sept. ☉.—Stem 1—2 feet high, branched. Leaves hairy, or nearly smooth. Flowers yellow, minute. Varies much in the character of its leaves. Hedge Mustard.

2. *S. sophia* Linn. : leaves bipinnate, smooth or pubescent ; segments oblong-linear, cut ; petals shorter than the calyx ; calyx thrice as short as the pedicel ; pod linear, erect.

HAB. Sandy places. Can. June, July. ☉.—Stem 8—12 inches high. Flowers yellow, numerous. Fruit-bearing-raceme very long. I have received a specimen of what I think must be the true *S. sophia* from Dr. Holmes of Montreal. The pods are very narrow-linear, 1-2 to 3-4 of an inch, longer and narrower than in *S. canescens* of Nuttall, and not clavate as in the latter. In other respects I cannot observe any difference between these two plants.

19. ERYSIMUM. Linn.

Pod four-sided. Calyx closed. Cotyledons flat, oblong.
Tetradynamia. Siliquosa.

1. *E. cheiranthoides* Linn. : leaves lanceolate, somewhat toothed and scabrous ; pod erect-spreading, twice as long as the pedicel ; stigma small, nearly sessile.

HAB. Fields. Near Fairfield, N. Y. Can. and on all the plains westward of the Rocky mountains. July. ☉.—Stem 1—2 feet high, erect, and with the leaves scabrous. Flowers yellow, in long-terminal racemes. Pods linear, somewhat spreading, 1-2 to 3-4 of an inch long.

20. SINAPIS. Linn.

Pod roundish ; valves bearing nerves ; style small, short, acute. Seeds in one series, subglobose. Calyx spreading.
Tetradynamia. Siliquosa.

1. *S. nigra* Linn. : lower leaves lyrate ; upper ones lanceolate, entire, petiolate ; pod smooth and even, somewhat 4-sided, appressed to the peduncle.

HAB. Fields. N. S. June, July. ☉.—Stem 2—4 feet high. Flowers yellow. Common Mustard.

2. *S. alba* Linn. : leaves lyrate, nearly smooth, the terminal lobe large ; pod mostly hispid, spreading, shorter than the broad sword-form beak ; seeds large, pale.

HAB. Waste places. N. S. July. ☉.—Stem 1—2 feet high. Flowers yellow, rather large, corymbose. Introduced. White Mustard.

21. RAPHANUS. *Linn.*

Pod transversely many-celled or dividing into several joints. *Seeds* in one row, globose, pendulous.

Tetradynamia. Siliquosa.

R. raphanistrum *Linn.* : leaves simply lyrate ; pod jointed, 1-celled, striate, 3—8 seeded, longer than the style.

HAB. Fields. N. S. July. ☉.—*Stem* 1—2 feet high, hispid. *Flowers* yellow, large. *Wild Radish.*

ORDER XIII. CAPPARIDEÆ. *De Cand. Lind.*

Sepals 4. *Petals* 4, cruciate, usually unguiculate and unequal. *Stamens* 4, 6, or indefinite, but usually some high multiple of four. *Disk* hemispherical or elongated. *Fruit* either pod-shaped and dehiscent, or fleshy and indehiscent, rarely 1-seeded, most frequently with 2-polyspermous placentæ. *Seeds* generally reniform ; *albumen* none ; *embryo* incurved ; *cotyledons* foliaceous.

Herbs, without true stipules, but sometimes with spines in their places. *Leaves* alternate, petioled, undivided or palmate.

1. GYNANDROPSIS. *De Cand.*

Calyx of 4 sepals, spreading. *Petals* 4. *Torus* elongated. *Stamens* 6, united around the torus, free at the apex. *Pod* stiped.

Tetradynamia. Siliquosa.

G. pentaphylla *De Cand.* : smoothish ; leaves quinate ; the lower and floral ones ternate ; leaflets entire and subserrulate.—*Cleome pentaphylla* *Linn.*

HAB. Sandy fields. N. S. to S. Car. July. ☉.—*Stem* 2 feet high, viscid. *Flowers* white, in long terminal racemes. *Petals* obovate, with very long capillary claws. *Pod* long, linear, on a long foot-stalk.

2. POLANISIA. *Raf.*

Calyx of 4 sepals, spreading. *Petals* 4. *Stamens* 8—32. *Torus* small. *Pod* sessile or scarcely stiped. *Style* distinct.

Tetradynamia. Siliquosa.

P. graveolens *Raf.* : viscidly pubescent ; leaves ternate ; leaflets elliptical-oblong ; stamens 8—12 ; pod oblong, attenuate at base, mucricate with a glandular pubescence.—*Cleome dodecandra*, var *canadensis* *Linn.*

HAB. Sandy places. N. S. and Can. W. to Miss. June. 2f.—
Stem 8—12 inches high. Flowers purple and yellow. Whole
plant more or less viscid and fetid.

ORDER XIV. CISTINEÆ. *De Cand. Lind.*

Sepals 5, persistent, unequal, the three inner with a twisted æstivation. *Petals* 5, hypogynous, very fugitive, crumpled in æstivation and twisted in a direction contrary to that of the sepals. *Stamens* indefinite, hypogynous, free; *anthers* innate; *stigma* simple. *Ovary* distinct, 1 or many celled; *style* single. *Fruit* capsular, usually 3-5-10-valved, either 1-celled with parietal placentæ in the axis of the valves, or imperfectly 5 or 10-celled with dissepiments proceeding from the middle of the valves, and touching each other in the centre. *Seeds* indefinite in number. *Embryo* inverted, either spiral or curved in the midst of mealy *albumen*.

Shrubs or *herbs*. *Leaves* usually entire, opposite or alternate. *Flowers* very fugacious.

1. HELIANTHEMUM. *Tourn.*

Calyx with 3 equal sepals, or 5 disposed in two rows, the two outer ones often smaller, rarely larger. *Petals* 5, often irregularly denticulate at the apex. *Stigma* capitate. *Ovary* triquetrous. *Capsule* 3-valved, with the dissepiment in the middle of the valves. *Seeds* angled, smooth.

Polyandria. Monogynia.

* *Peduncles* one-flowered.

1. *H. canadense* Mich.: stem ascending; branches erect, hirsute; leaves oblong-lanceolate, acute, hirsute, paler beneath; peduncles solitary, 1-flowered; sepals broad-ovate, acuminate; capsule shorter than the calyx.

HAB. Margins of woods. Can. to Car. June. 2f.—Stem a foot high. Racemes few-flowered, generally terminal. Flowers yellow, large. *Rock Rose. Frost Weed.*

2. *H. ramuliflorum* Mich.: stem erect, pulverulent-pilose, branching, subdichotomous at the apex; branches virgate, flower-bearing; leaves lanceolate-elliptic or oblong, acute, margin scarcely revolute, white tomentose beneath; flowers peduncled, solitary; sepals broad-ovate, acuminate; capsule globose, of the length of the calyx.

HAB. Fields. N. J. to Car. 2f. July.—Stem a foot high. Flowers yellow, small. Calyx and peduncles pilose. Style very short.

**** Peduncles many flowered.**

3. *H. corymbosum* Mich. : stem suffruticose, branching, erect ; branches dichotomous, subpubescent ; leaves alternate, lanceolate-oblong, somewhat obtuse, white, tomentose beneath ; upper ones revolute on the margin ; flowers in crowded fastigiate corymbs ; sepals tomentose and whitish hirsute, outer ones linear-obtuse ; inner ovate, acute, scarcely as long as the capsule.

HAB. Sandy fields. N. J. to Geor. June—Aug. 24.—This plant is said by Pursh to have the flowers very small and sometimes without petals. On the other hand, Elliott remarks that although the flowers are much smaller than those of *H. carolinianum*, they are nearly equal in size to those of our other species. Perhaps the assertion of Pursh that this and the foregoing species have been mistaken for *Lechea major* will apply to himself.

2. LECHEA. Linn.

Calyx 3-sepalled, with two outer bracts or sepals. *Petals* 3, lanceolate. *Stamens* 3—12, and often thrice the number. *Ovary* 1, 3-sided. *Stigmas* 3, scarcely distinct. *Capsule* 3-valved, with as many inner valves opposite the others. *Seeds* affixed to the dissepiment or nerve, very few, often 8.

Triandria. Trigynia.

1. *L. villosa* Ell. : radical branches prostrate, villose ; leaves oblong-lanceolate, mucronate, pilose ; panicle short, leafy ; flowers fasciculate-racemose, secund, on very short pedicels.—*L. minor* Linn.—*L. major* Mich. Pursh. Torr.

HAB. Barren soil. Can. to Flor. July. 24.—Stem 1—2 feet high. *Flowers* brown. *Pin Weed.*

2. *L. minor* Pursh. : nearly smooth ; stem assurgent ; leaves linear-lanceolate, acute ; panicle leafy ; branches elongated ; flowers on short pedicels.

HAB. Dry hills. Can. and N. S. July. 24.—Stem 8—12 inches high. *Fruit* larger than in the former.

3. *L. racemulosa* Mich. : whole plant covered with appressed pubescence ; stem erect ; leaves linear, acute, ciliate ; panicle slender and very branching ; raceme naked ; flowers small, alternate, pedicellate.

HAB. Sandy Hills. N. J. to Car. July. 24. Pursh.

4. *L. thymifolia* Pursh. : whole plant whitish-villose ; stem erect ; leaves linear, acute ; panicle leafy, elongated ; branches very short ; flowers minute, in lateral and terminal fascicles ; pedicels very short.

HAB. Sands. N. Y. to Virg. July. 24.—Stem a foot high, erect, much branched. *Leaves* villose at base.

3. HUDSONIA. Linn.

Calyx 5-parted ; segments unequal, the two outer ones minute. *Petals* 5. *Stamens* 9—30. *Style* straight, simple.

Stigma simple. *Capsule* 1-celled, 3-valved, 1—3 seeded. *Seeds* granulated. *Polyandria. Monogynia.*

1. *H. ericoides* Linn.: pubescent; stem suffruticose, sub-erect; branches elongated; leaves filiform, subulate, subimbricate; peduncles numerous, lateral, elongated; calyx cylindrical, obtuse; capsule pubescent, 1-seeded; valves oblong.

HAB. Pine barrens. N. J. to Virg. May, June. h.—Stem 4—6 inches high, much branched. Leaves small, persistent. Flowers small, yellow. Stamens about 15. False Heath.

2. *H. tomentosa* Nutt.: cespitose, hoary-pubescent; leaves minute, closely imbricate, ovate, acute; flowers aggregated, subsessile; calyx sub-cylindric, with obtuse segments; capsule 1-seeded; valves ovate, smooth.

HAB. Sea shore. N. J. to Virg. June. h.—Stem 6 inches high. Flowers yellow. Stamens 14—18. The whole plant is silvery gray and tomentose.

ORDER XV. VIOLACEÆ. De Cand. Lind.

Sepals 5, persistent, with an imbricate æstivation. *Petals* 5, hypogynous, equal or unequal, usually withering, and with an obliquely convolute æstivation. *Stamens* 5, alternate with the petals, occasionally opposite to them, inserted in a hypogynous disk, often unequal; *anthers* bilocular, bursting inward, either separate or cohering, and lying close upon the ovary; *filaments* dilated, elongated beyond the anthers; two of them, in the irregular flowers, generally furnished with an appendage or gland at the base. *Ovary* 1-celled, many-seeded, or rarely 1-seeded, with 3 parietal placentæ opposite the 3 outer sepals; *style* single, usually declinate, with an oblique hooded *stigma*. *Capsules* of 3-valves, bearing the placentæ in their axis. *Seeds* often with a tumour at their base. *Embryo* straight, erect, in the axis of fleshy *albumen*.

Herbs or *Shrubs*. *Leaves* simple, usually alternate, stipulate, with an involute veneration. *Inflorescence* various.

1. VIOLA. Tourn.

Sepals 5, auricled at their base. *Petals* unequal, the lower one spurred. *Stamens* 5, approximated; *filaments* distinct; *anthers* connate, the two lower ones with processes at their back. *Capsule* 1-celled, 3-valved, opening elastically.

Pentandria. Monogynia.

OBS. The North American species of this interesting genus have been studied with much care by the Rev. L. de Schweinitz and by Capt.

Le Conte, and those of the Northern and Middle States have been no less faithfully examined by Dr. Torrey.—See *Sill. Jour.* vol. v. *Ann. of the New York Lyc.* vol. ii. *Torrey's Flora*, vol. i.

* *Stemless.*

† *Flowers blue.*

1. *V. pedata* Linn. : leaves pedate, often nearly smooth, from 5—7 parted ; segments linear-lanceolate, entire or somewhat toothed ; stipules radical, pectinately lacerate ; petals beardless, entire, rounded at the extremity ; stigma large, compressed, obliquely truncate and perforate at the apex.—*V. digitata* Pursh.

HAB. Rocky hills. From lat. 53 N. to Geor. W. to Miss. May.

2l.—*Scapes* 3—5 inches high, several from the same root.

Flowers large, pale blue.

2. *V. palmata* Linn : leaves more or less pubescent, reniform-cordate, palmate, or hastate-lobed ; lobes very various, the intermediate one always larger ; stipules lanceolate, subciliate ; lateral petals densely bearded towards the base ; stigma capitate, recurved, marginated, rostrate.

HAB. Swamps and low grounds. Can. to Car. May. 2l.—*Scape* about as long as the leaves. *Flowers* middle-sized. This species varies greatly in the form of its leaves, and in some specimens they are so slightly divided, as to induce me to concur in the opinion expressed by Dr. Bigelow that it is only a variety of *V. cucullata*.

3. *V. cucullata* Ait. : smoothish ; leaves cordate, cucullate at base, dentate-serrate, veined ; stipules small, linear, ciliate ; flower oblique ; lower and lateral petals rigidly bearded ; upper one smooth ; spur very short, rounded.—*V. papilionacea* Pursh.—*V. affinis* Le Conte.—*V. obliqua* Ait. Pursh. Torr. *V. sororia* Pursh.

HAB. Wet meadows. Common throughout Can. and the U. S. April, May. 2l.—This species varies considerably in the form of its leaves, and in the degree of pubescence. The same individual, indeed, undergoes changes during the season. A specimen in the herbarium of my brother, Dr. T. R. Beck, labelled by the late Dr. Muhlenburg *V. obliqua* ? is certainly identical with this species.

4. *V. sagittata* Ait. : leaves pubescent on the upper surface, oblong, acute, cordate, sagittate, often hastate at base, serrate or crenate-dentate ; petals oblong, ovate, all except the lower one bearded. *V. dentata* Pursh.

b. emarginata Nutt. : leaves almost triangular, lacerately toothed at the base ; petals emarginate or bi-dentate.—*V. emarginata* Le Conte.

HAB. Fields. Can. to Car. May. 2l.—*Leaves* quite variable. *Flowers* middle-sized, purple.—Var. *b.* is found in the sandy fields of New-Jersey.

5. *V. ovata* Nutt. : leaves oblong-ovate, rather acute, subcordate, crenate, often lacerately toothed at base, decurrent on the petiole, pubescent on both sides ; stipules broad-lanceolate, ciliate ; sepals oblong-lanceolate ; petals obovate, entire ; lateral ones densely bearded.

V. primulæfolia Pursh.—*V. ciliata* Muhl.

HAB. Dry hills. Can. and N. S. April, May. 2f.—Whole plant pubescent. *Leaves* much narrower and more downy than in *C. cucullata*. *Flowers* larger than those of *V. primulæfolia*.

6. *V. villosa* Walt. : leaves reniform-cordate or reniform, obtuse, crenate, flat, very pubescent ; sepals oblong, auriculate at base ; lateral and lower petals bearded ; stigma deflexed ; capsule smoothish.—*V. barbata* Muhl.

b. *cordifolia* Nutt. : leaves smooth beneath, rather acute ; sepals narrow, short, smooth and scarcely produced at base.—*V. cordifolia* Schw.

HAB. Rocky hills. Penn. to Car. May. 2f.—*Leaves* rather thick, mostly incumbent on the ground, often purplish on the under side. *Scape* longer than the leaves.

†† *Flowers yellow.*

7. *V. rotundifolia* Mich. : leaves broad-ovate or orbicular, cordate, with the sinus at length closed, slightly crenate, smooth beneath ; stipules lanceolate-subulate ; sepals oblong, narrow, obtuse ; lateral petals bearded ; lower ones smaller, smooth ; spur very short ; stigma recurved.

HAB. Rocky woods. Can. to Car. May. 2f.—*Flowers* yellow, middle-sized. Distinct from *V. clandestina* of Pursh.

††† *Flowers somewhat regular, small, white.*

8. *V. lanceolata* Linn. : leaves very smooth, narrow lanceolate, attenuated at each end, sub-serrate ; sepals lanceolate, acute, smooth ; petals beardless, nearly equal ; spur very short ; stigma recurved, rostrate.

HAB. Swamps. Can. to Car. W. to Lake Huron. April, May. 2f.—*Scape* nearly as long as the leaves. *Flowers* small, white, inodorous. The long narrow leaves will sufficiently distinguish this species.—One of the finest localities that I have met with, is a swamp about a mile west of Albany.

9. *V. acuta* Big. : leaves ovate, smooth, crenate, rather obtuse ; stipules linear-subulate ; scape angular ; bracts nearly as long as the petals ; sepals lanceolate, acute, smooth ; petals ovate, acute, mostly smooth, lower ones veined ; stigma capitate, rostrate.

HAB. Moist grounds. Cambridge, Mass. Big. 2f.—A small species. Distinguished by its even and always acute petals and by its long linear bracts.

10. *V. primulæfolia* Linn. : leaves smooth, oblong ovate or lanceolate, subcordate, rather obtuse, sparingly crenate ; nerves beneath and scape somewhat pubescent ; sepals lanceolate ; petals obtuse ; the two lateral ones a little bearded and striate ; stigma capitate, rostrate.

HAB. Wet grounds. N. Y. to Car. April, May. 2f.—*Flowers* white, odorous, about the size of those of *V. lanceolata*. *Bracts* long. This species varies in the form of its leaves from the broad-cordate to the lanceolate. Near New-Brunswick, where what I consider the *V. primulifolia* is very abundant, it certainly passes into *V. lanceolata*, with which species I think it will eventually prove identical. Dr. Bigelow suggests that *V. blanda* and *V. lanceolata* may be the same; but so far as my observation extends, the former is much more constant in its characters than *V. primulifolia*.

11. *V. blanda* Willd. : leaves broad-cordate, remotely serrate or crenate, nearly smooth; sinus rounded; sepals ovate, acuminate; petals ovate, obtuse, nearly beardless; stigma depressed, acutely margined.

HAB. Wet meadows. From lat. 66° N. to Car. April, May. 2f.—*Flowers* small, white, streaked with purple, odorous. This species very closely resembles the foreign *V. palustris*.

12. *V. clandestina* Pursh : cespitose; leaves large, suborbicular, obtuse, thin, nearly smooth, crenate, serrate; sinus closed, cordate; stipules ovate, short; stolons floriferous; petals narrow, ovate, beardless, scarcely longer than the calyx; flowers often apetalous; stigma straight, capitate.

HAB. Shady woods on mountains. Can. and N. S. June—Sept. 2f.—*Flowers* often apetalous, generally concealed in the earth. More nearly allied to *V. rotundifolia* than to *V. blanda*, but distinct from both.

** *Cauliscent.*

13. *V. canadensis* Linn. : stem erect; leaves broad-cordate, acuminate, serrate, slightly pubescent on the nerves, lower ones on long petioles; stipules broad-lanceolate, membranaceous, entire; sepals subulate, lanceolate; spur very short; stigma short, pubescent; capsule oblong, 3-sided, very obtuse.

HAB. Fields. Throughout Can. and the U. S. May—July. 2f.—*Stem* 12—18 inches high. *Flowers* large, blue without, pale within.

14. *V. ochroleuca* Scho. : stem assurgent; leaves alternate, lower ones round-cordate, crenate-serrate, obtuse, upper ones acuminate; stipules large, oblong-lanceolate, dentate-ciliate; sepals subulate-lanceolate; petals obtuse; the lateral ones and often the lowest profusely bearded; spur produced, obtuse; stigma recurved, subpubescent.—*V. striata* Ait. Le Conte.

HAB. Swamps. N. S. May. 2f.—*Stem* 6—10 inches. *Flowers* yellowish-white, large.

15. *V. mühlenbergiana* De Cand. : stem weak, subprostrate, branched, smooth; lower leaves reniform-cordate; upper ones a little acuminate, crenate-serrate, nearly smooth; stipules large, oblong-lanceolate, serrate-ciliate; sepals linear-lanceolate; petals obovate, obtuse, the lateral ones bearded; spur nearly one third the length of the corol;

stigma rostrate.—*V. muhlenbergii* Torr.—*V. uliginosa* and *asarifolia* Muhl.—*V. debilis* Pursh. Schw.

HAB. Swamps. Labrador, Can. and N. S. May. 24.—*Stem* 6—10 inches high. *Flowers* middle-sized, blue. My specimens of this plant agree in every respect with those of *V. canina* of Linnæus from Scotland and Switzerland.

16. *V. rostrata* Muhl. : stem diffuse, erect ; leaves smooth, cordate, acute, serrate ; sinus open ; stipules large, lanceolate, serrate-ciliate ; peduncles filiform, longer than the leaves ; petals obovate, all beardless ; spur longer than the corol.

HAB. Rocky hills. Can. and N. S. April, May. 24.—*Stem* 6—8 inches high, smooth. *Flowers* large, pale blue, with a very long horn or spur, by which this species can be easily recognized.

17. *V. pubescens* Ait. : villous-pubescent ; stem elongated, erect, naked below ; leaves broad-ovate, cordate, dentate, more or less acuminate ; stipules large, ovate, somewhat toothed ; lateral petals bearded ; spur short, acuminate.—*V. pennsylvanica* Mich.

b. eriocarpa Nutt. : capsule densely villous.—*V. eriocarpa* Schw.

HAB. Dry woods. Can. and N. S. W. to Council Bluffs. April, May. 24.—*Stem* 6—8 inches high. *Flowers* middle sized, yellow.

18. *V. hastata* Mich. : smooth ; stem erect, simple, leafy above ; leaves on long petioles, cordate-lanceolate or hastate, acuminate ; lobes obtuse, dentate ; stipules minute, ciliate-dentate ; lower petal dilated, sub-3-lobed ; lateral ones slightly bearded ; spur short ; stigma truncate, hairy on the sides.

HAB. Mountains. Penn. Muhl. May. 24.—*Stem* 8—12 inches high. *Flowers* yellow.

19. *V. tenella* Muhl. : stem 3-sided, erect, mostly simple ; lower leaves round, spathulate ; upper ones lanceolate ; stipules large, runcinate-pinnatifid ; sepals ovate-lanceolate, nearly as long as the petals ; lateral petals bearded ; spur obtuse, not extended ; nectaries short.—*V. bicolor* Pursh.—*V. arvensis* Ell.

HAB. Sandy hills. N. Y. to Car. W. to Miss. May. 24.—*Stem* 2—4 inches high. *Flowers* small, bluish-white. De Candolle and Hooker consider this a variety of *V. tricolor*, while Torrey thinks it is nearer to *V. arvensis*. I still think it distinct.

2. SOLEA. Ging. De Cand.

Sepals scarcely equal, carinate ? not auricled at base, decurrent into a pedicel, at length reflexed. *Petals* nearly equal ; lower one a little larger than the rest, and somewhat gibbous at base. *Stamens* approximate ; *filaments* with short broadish claws at base.

Pentandria. Monogynia.

S. concolor De Cand.—*S. stricta* Spreng. ?—*Viola concolor* Fors. Pursh. Torr.

HAB. Rocks. N. Y. to Car. W. to Miss.; rare. April, May. 2f.—*Stem* 2—4 feet high, simple, erect. *Leaves* cuneate-lanceolate, sessile, irregularly toothed above. *Peduncles* short, 2—3 flowered. *Flowers* small, greenish. *Calyx* nearly as long as the petals. *Spur* none. I possess fine specimens of this plant which were gathered near Lebanon, N. Y.

ORDER XVI. DROSERACEÆ. De Cand. Lind.

Sepals 5, persistent, equal, with an imbricate æstivation. *Petals* 5, hypogynous. *Stamens* distinct, withering, either equal in number to the petals and alternate with them, or 2 or 3 or 4 times as many. *Ovary* single. *Styles* 3—5, either wholly distinct or slightly connected at the base, bifid or branched. *Capsule* of 1 or 3-cells, and 3 or 5-valves, which bear the placentæ either in the middle or at the base. *Seeds* either naked or furnished with an arillus; *embryo* straight, erect, in the axis of fleshy or cartilaginous albumen; *cotyledons* rather thick.

Delicate herba, often covered with glands. *Leaves* alternate, with stipulary ciliæ and a circinate veneration.

1. DROSERA. Linn.

Calyx deeply 5-cleft. *Petals* 5. *Stamens* 5. *Styles* 3—5, bipartite. *Capsules* superior, 3-celled, 3—5 valved, many-seeded. *Pentandria. Pentagynia.*

1. *D. rotundifolia* Linn.: leaves all radical, orbicular, petiolate, spreading, covered above and on the margin with crimson hairs; petioles long, hairy; scape bearing a simple terminal raceme; seeds arillate.

HAB. Sphagnous swamps. From Arctic America to Car. July, Aug. 2f.—*Scape* 4—8 inches high. *Flowers* small, whitish. *Sundero*,

2. *longifolia* Linn.: leaves crenate-obovate, tapering below into a long petiole, erect-spreading; scape declined at the base; stipules many-cleft, capillaceous; segments of the calyx ovate-oblong, obtuse.—*D. americana* Muhl.—*D. foliosa* Ell.

HAB. Swamps. N. Y. to Car. July, Aug. 2f.—*Scape* 2—4 inches long. *Racemes* simple. *Flowers* secund.

3. *D. filiformis* Raf.: leaves filiform, very long, glandulous the whole length; scape longer than the leaves, simple or bifid.—*D. tenuifolia* Willd.

HAB. Swamps. Mass. N. J. and Del. Aug. Sept. 21.—*Leaves* 6—10 inches long. *Flowers* purple, few, in a one-sided raceme.

2. PARNASSIA. Linn.

Calyx 5-sepalled. *Petals* 5. *Scales* (or abortive stamens?) opposite to the claws of the petals, terminating in glandular bristles at the apex. *Stamens* 5. *Stigmas* 4, sessile. *Capsules* 4-valved, 1-celled. *Seeds* arillate.

Pentandria. Tetragynia.

1. *P. caroliniana* Mich.: radical leaves cordate, orbicular-ovate, on long petioles; stem leaf sessile; flowers solitary, terminal; scales 3-bristled.—*P. americana* and *P. ovata* Muhl.?

HAB. Swamps. Can. to Car. Aug. Sept. 21.—*Stem* 12—18 inches high. *Leaves* mostly radical. *Flowers* large, yellowish-white. *Parnassus* Grass.

2. *P. palustris* Linn.: leaves all cordate; cauline one sessile; scales smooth, many-bristled.

HAB. Bog meadows. N. S. Can. and as far north as the Arctic circle. *Flowers* white, veins of green or purple. Distinguished by the numerous, slender, white, pellucid hairs of its scale from all the other species of the genus.

ORDER XVII. POLYGALEÆ. De Cand. Lind.

Sepals 5, very irregular, distinct, 3 exterior, of which 1 is superior and 2 inferior; 2 inner ones (the *wings*) often petaloid. *Petals* 3—4, hypogynous, one inferior (the *keel*) the others alternating with the upper and lateral sepals; sometimes 5, and then the 2 additional ones minute and between the lateral and lower sepals. *Keel* sometimes entire, and then naked or crested; sometimes 3-lobed without a crest. *Stamens* 8, unequal, ascending, combined into a tube, which is split opposite to the upper sepal; *anthers* 1-celled, opening by a terminal pore, or very rarely by a longitudinal cleft. *Ovary* superior, 2-celled, with placenta in the axis; the cells anterior and posterior, the latter often abortive; *ovules* 1, rarely 2, pendulous; *style* simple, curved; *stigma* simple. *Fruit* dehiscent or indehiscent. *Seeds* pendulous, with a copious fleshy *albumen* and a straight *embryo*.

Shrubs or *herbs*. *Leaves* generally alternate, mostly simple and always destitute of stipules. *Flowers* usually racemose, often small. *Pedicels* with 3 bracts.

1. POLYGALA. *Tourn.*

Sepals of the *calyx* persistent; two inner ones wing-shaped and coloured. *Petals* 3—5, united to the stamens, lower one keelform. *Capsule* compressed, elliptic, obovate or obcordate. *Seeds* pubescent, *Diadelphia. Octandria.*

* *Flowers in racemes or spikes.*

1. *P. vulgaris* Linn.: stem herbaceous, procumbent; leaves linear-lanceolate, rather obtuse; flowers in a terminal spike, erect; wings of the calyx obtuse, longer than the corol.

HAB. Banks of the Mohawk, N. Y. Nutt. June. 21.—Stems numerous. Flowers blue, cristate. According to De Candolle there are 7 varieties of this species.

2. *P. incarnata* Linn.: glaucous; stem erect, slender, nearly simple; leaves scattered, few, subulate; racemes spiked, oblong, without glands; corol with a long tube.

HAB. N. J. to Car. Near Niagara Falls. Hooker. June, July, ☉.—Stem 12—18 inches high, somewhat angled, with few remote subulate leaves. Flowers flesh-coloured, in a somewhat loose terminal spike; petals united into a long slender tube. A specimen of this plant, received from Dr. Charles Pickering, and gathered by him in New-Jersey, has only 4 or 5 subulate leaves on the stem, which is more than a foot high. *Milk Wort.*

3. *P. cruciata* Nutt.: stem fastigiate, winged at the angles; leaves whorled in fours, linear-lanceolate, punctate; spikes dense, sessile; flowers subcristate; wings of the calyx cordate, acuminate, mucronate.

HAB. Wet places. Can. to Geor. July, Sept. ☉.—Stem 8—12 inches high, with spreading branches. Flowers greenish-purple, Corol slightly fimbriate.

4. *P. brevifolia* Nutt.: stem erect, branched, winged at the angles; leaves whorled in fours, oblong-linear, short, sprinkled with resinous dots; spikes pedunculate, partly capitate; flowers subcristate; wings of the calyx cordate-ovate, acute, scarcely longer than the capsule.

HAB. Sandy swamps. N. J. to Ohio. July, Aug. ☉.—Stem slender. Flowers brightish red. Resembles the former, but is quite distinct. Dr. Hooker thinks this may be the true *P. cruciata* of Linnæus, while the *P. cruciata* of Nuttall is distinct. But there is still some doubt with regard to the correctness of this opinion.

5. *P. fastigiata* Nutt.: stem slender and fastigiately branched; leaves alternate, linear, acute; spikes subcapitate, pedunculate; flowers subcristate; wings of the calyx spreading, ovate, acute, scarcely longer than the capsule.—*P. setacea* Muhl.

HAB. N. J. ☉. Nutt.—Nearly allied to *P. cruciata*.

6. *P. purpurea* Nutt.: stem fastigiately branched; leaves alternate, oblong-linear; flowers beardless, imbricated in obtuse cylindrical

spikes; rachis squarrose; wings of the calyx cordate-ovate, erect, twice as long as the capsule.—*P. sanguinea* Mich. Pursh.

HAB. Woods and hill sides, Throughout N. Amer. July, Aug.

☉.—Stem 12—18 inches high. Flowers rose-coloured.

7. *P. sanguinea* Linn.: stem fastigiately branched; leaves alternate, narrow-linear; flowers beardless, in long and crowded spikes; rachis squarrose; wings of the calyx obovate, as long as the capsule.

HAB. Dry soils. N. J. to Car. July—Oct. ☉.—Stem 8—12 inches high. Flowers dark red. Allied to the former, but a much smaller plant, the leaves shorter and narrower, and with a longer and more loose spike; the rachis also is much more squarrose.

8. *P. ambigua* Nutt.: stem erect, virgately branched; leaves linear; the lower ones whorled; the rest scattered; spikes acute, on very long peduncles; flowers cristate; wings of the calyx round and veined, as long as the fruit; bracts deciduous.

HAB. Wet woods. N. J. and Virg. ☉.—Flowers purple, distinctly pedicellate, larger than those of the next species.

9. *P. verticillata* Linn.: stem erect, branched; leaves whorled, linear and remote; racemes spiked, acute, pedunculate; bracts deciduous; flowers cristate; wings of the calyx roundish, shorter than the capsule.

HAB. Sandy soils. Can. to Car. W. to Miss. July—Oct. ☉.—Stem 8—12 inches high, slender, slightly angled. Leaves sometimes solitary. Flowers small, greenish-white. Capsule sessile. Dwarf Snake-root.

10. *P. senega* Linn.: stems numerous, erect, smooth, simple; leaves alternate, ovate-lanceolate; upper ones acuminate; racemes naked, spiked; wings of the calyx orbicular; capsule elliptical, emarginate.

HAB. Woods. Can. to Geor. June, July. 2f.—Stem a foot high. Leaves pale green. Flowers whitish, in a terminal spike. The root is hard, firm and branching, and is much used in medicine. Big. Med. Bot. ii. 97. Bart. ii. 116. Seneka Snake-root.

11. *P. polygama* Walt.: stems numerous, simple, erect and procumbent; leaves linear-lanceolate, attenuate downwards; racemes filiform, terminal and lateral, elongated; lower ones procumbent, without petals; flowers sessile.—*P. rubella* Willd. Pursh.

HAB. Forests. Can. to Car. June, July. 2f.—Stem 4—8 inches high, angular. Flowers purple. The whole plant is bitter and is used in medicine. Big. Med. Bot. iii. 129. Bitter Polygala.

** Flowers capitate, (yellow.)

12. *P. lutea* Linn.: stem simple or branched; lower leaves spathulate; upper ones lanceolate; flowers in globular heads, yellow; wings of the calyx ovate, mucronate; bracts shorter than the flowers.

HAB. Pine barrens. N. J. to Flor. June—Oct. ♂.—Stem 8—16 inches high, mostly simple. Flowers bright yellow.

Yellow Polygala.

*** *Flowers in corymbs.*

13. *P. ramosa* Ell. : stem erect, branching, angular, corymbose at the summit, many-headed ; radical leaves spatulate-obovate ; cauline ones subequal, linear ; wings of the calyx oblong-ovate, cuspidate.—*P. corymbosa* Nutt. not of Mich.

HAB. Sphagnous swamps. Del. to Flor. July, Aug. 2f.—*Stem* a foot high, sometimes branching from near the base. *Flowers* in small loose heads forming a very irregular corymb, yellow, dark green when dry. According to Elliott, *P. corymbosa* of Michaux is a distinct species, identical with *P. attenuata* of Nuttall.

**** *Flowers axillary, (large.)*

14. *P. pauciflora* Willd. : stem simple, erect, naked below ; leaves ovate, acute, smooth ; flowers mostly terminal and by threes, large, cristate, sometimes axillary.

b. alba Eight : flower solitary, smaller, white ; stem somewhat leafy at base.

HAB. Woods. Can. to Car. W. to Lake Huron. June. 2f.—*Stem* 3—4 inches high. *Flowers* large, purple, with the summit of the keel densely crested. Var. *alba* was found by Dr. James Eight in the sand plains near Albany. It has the stem rather lower and more leafy than in the former ; the flower also is solitary, smaller, white, and the keel less densely crested.

Flowering Wintergreen.

15. *P. uniflora* Mich. : herbaceous, small ; leaves broad, oval, attenuated into a petiole ; flowers not crested, solitary, scattered, pedicellate.

HAB. Borders of Can. Mich. This plant, which is probably a native of the Northern States, has been confounded with the former ; but if Michaux has described it correctly, it must be distinct, as he says that the keel is not crested, and that the flowers are solitary and scattered.

ORDER XVIII. CARYOPHYLLÆ. *De Cand. Lind.*

Sepals 4—5, continuous with the peduncle ; either distinct or cohering in a tube, persistent. *Petals* 4—5, hypogynous, unguiculate, inserted upon the pedicel of the ovary ; occasionally wanting. *Stamens* twice as many as the petals, inserted upon the pedicel of the ovary along with the petals ; *filaments* subulate, sometimes monadelphous ; *anthers* innate.

Ovary stipitate on the apex of a pedicel (called the *gynophorus*) ; *stigmas* 2—5, sessile, filiform, papillose on the inner surface. *Capsule* 2—5 valved, either 1-celled or 2—5 celled, in the latter case with a loculicidal dehiscence. *Placenta* in the axis of the fruit. *Seeds* indefinite in number, rarely definite ; *albumen* mealy ; *embryo* curved round the albumen : *radicle* pointing to the hilum.

Herbs, occasionally becoming *suffrutescent*. *Stems* tumid at the articulations. *Leaves* always opposite and entire, often connate at the base.

1. DIANTHUS, Linn.

Calyx tubular, 5-toothed, with 2—4 opposite imbricate scales at base. *Petals* 5, with long claws. *Stamens* 10. *Styles* 2. *Capsule* 1-celled. *Decandria. Digynia.*

D. armeria Linn.: flowers in terminal crowded clusters; scales of the calyx lanceolate, villous, as long as the tube.

HAB. Sandy fields. N. J. July. ☼.—*Stem* 18 inches high. *Flowers* red, inodorous, small. Introduced. *Pink.*

2. SILENE. Linn.

Calyx tubular, 5-toothed, naked. *Petals* 5, unguiculate, mostly crowned at the orifice; limb bifid. *Stamens* 10. *Styles* 3. *Capsule* 3-celled at base, dehiscent at the top into 6 teeth. *Decandria. Trigynia.*

* *Caulescent.* *Flowers* solitary or paniced. *Calyx* inflated.

1. *S. stellata* Ait.: stem erect, branching, pubescent; leaves verticillate in fours, lanceolate, long-acuminate, smooth; flowers in panicles; calyx vesiculose, pubescent; limb of the petals fringed.—*Cucubalus stellatus* Linn.

HAB. Hill sides. Can. to Car. July, Aug. 2f.—*Stem* 2—4 feet high. *Flowers* white; *petals* about 4-cleft. *Calyx* inflated. *Star Campion.*

2. *S. inflata* Smith: stem branching, smooth and glaucous, decumbent; leaves oblong-oval, acute, nerveless; flowers paniculate; calyx vesiculate-ovate; petals bifid, naked; claws wedge-form; styles larger than the stamens.—*Cucubalus behen* Linn.

HAB. Rocky hills. Can. and N. S. July. 2f.—*Stem* 1—2 feet high. *Flowers* white; *petals* bifid. *Calyx* bladder like and beautifully veined. *Bladder Campion.*

3. *S. nivea* Muhl.: stem divaricate and dichotomous above; leaves oblong-lanceolate, minutely and puberulently pubescent, the uppermost ovate; calyx obtuse, bell-shaped, inflated, subpilose; petals small, reflexed, bifid at the extremity; claws exerted beyond the calyx, nearly naked; flowers solitary, dichotomal, terminal.—*Cucubalus niveus* Nutt.

HAB. "Upon an Island in the Susquehannah near to Columbia. Penn. Muhlenberg." Nutt. June, July. 2f.—*Stem* smooth and slender. *Leaves* opposite, 2 inches long, and 1-2 an inch wide. *Flowers* white, remote, solitary, dichotomal and terminal. Nuttall quotes the above name from Muhlenberg as a synonym for his *Cucubalus niveus*, but I cannot find it in his catalogue. It may be the *S. alba* of Muhlenberg, and is perhaps only a variety of *S. inflata*.

** *Caulescent. Flowers in axillary spikes, alternate. Calyx 10-riate.*

4. *S. nocturna* Linn.: stem branched, pilose below; leaves pubescent, long ciliate at base; lower ones spatulate, upper ones linear-lanceolate; spike secund, dense; flowers sessile, alternate; calyx cylindrical, nearly smooth; petals 2-parted, narrow.

HAB. Penn. and Virg. July. ☉.—*Flowers white, greenish beneath.*

*** *Caulescent. Stem rigidly erect. Peduncles filiform. Calyx bellform or cylindrical.*

5. *S. antirrhina* Linn.: almost smooth; stem erect, branching, somewhat leafy; leaves lanceolate, acute, subciliate, upper ones linear; flowers small, paniced; calyx ovate, glabrous; petals obcordate, crowned; stamens included.

HAB. Dry hills. Can. to Car. June. ☉.—*Stem 1—2 feet high, nearly glabrous, with very slender erect branches and peduncles. Calyx broad-oval or obovate, shining. Blossoms nocturnal. Corol small, whitish. Sleepy Catch-fly.*

**** *Caulescent. Flowers paniced, rarely solitary. Pedicels opposite, short. Calyx tubular.*

6. *S. catesbæi* Walt.: branching; leaves broad-lanceolate; flowers in panicles; calyx clavate, coloured; petals with long claws; limb bifid, with two lateral teeth; lobes acute.—*S. virginica* Mich. Pursh, not of Linn.

HAB. Penn. to Miss. Muhl. June. 2f.—*Stem a foot high; Flowers crimson. Both De Candolle and Hooker concur in supposing the present plant distinct from S. virginica, though it is confounded by the authors above mentioned and also by Dr. Torrey and Mr. Elliott.*

7. *S. virginica* Linn.: viscid-pubescent; stem procumbent, assurgent, branching; leaves lanceolate; lower ones on long petioles, with long ciliæ at base; flowers large, in panicles; petals with long claws, broad, bifid, crowned.

HAB. Penn. to Car. W. to Lake Huron. May, June. 2f.—*Flowers purple. Distinct from the next.*

8. *S. pennsylvanica* Mich.: viscidly-pubescent; radical leaves somewhat cuneate; those of the stem long-linear; flowers in panicles, somewhat trichotomous; calyx long, tubular; petals slightly emarginate, subcrenate.—*S. caroliniana* Walt.

HAB. Sandy woods. Can. to Geor. May, June. 2f.—*Stems numerous, caespitose, 8—12 inches high. Petals bright purple. Wild Pink.*

***** *Cespitose. Stems almost wanting. Calyx subinflated. Peduncles 1-flowered.*

9. *S. acaulis* Linn.: stems very densely caespitose, low; leaves linear, ciliate at base; peduncles solitary, short, 1-flowered; calyx campanulate; petals obcordate, crowned.

HAB. White mountains, N. H. and throughout the whole of Arctic America, N. of lat. 54°. W. to Rocky mountains.—Nearly stemless, depressed. *Flowers* rose-coloured.

3. SAPONARIA. Linn.

Calyx tubular, 5-toothed, naked at base. *Petals* unguiculate; claw equalling the calyx. *Stamens* 10. *Styles* 2. *Capsule* 1-celled. *Decandria. Digynia.*

1. *S. vaccaria* Linn.: leaves ovate-lanceolate, sessile; flowers in panicles; calyx pyramidal, 5-angled, smooth; bracts membranaceous, acute.

HAB. Fields. Williamstown, Mass. *Davey*. July. ☉.—*Flowers* rose-coloured.—Probably introduced, but completely naturalized at the above locality. *Field Soap-wort.*

2. *S. officinalis* Linn.: leaves ovate-lanceolate, ribbed, acute or obtuse; flowers large, in a fasciculate panicle; calyx cylindrical; appendages of the petals linear.

HAB. Road sides. June—Sept. 2f.—*Stem* 12—18 inches high. *Leaves* opposite and connate. *Flowers* large, rose-coloured.—It is said to make a lather with water, and hence its common name. Introduced. *Soap-wort.*

4. AGROSTEMMA. Linn.

Calyx tubular, 5-sided, coriaceous. *Petals* 5, unguiculate, not crowned; limb entire. *Capsule* 1-celled, opening with 5 teeth. *Decandria. Pentagynia.*

A. githago Linn.: hairy; leaves opposite, linear-lanceolate; segments of the calyx much longer than the corol; flower solitary, terminal, large; petals entire, destitute of a crown.—*Lychnis githago* De Cand.

HAB. In corn fields. June, July. ☉.—*Stem* 18—20 inches high. *Flowers* large, purple. Introduced. *Corn Cockle.*

5. SAGINA. Linn.

Calyx 4—5 parted. *Petals* 4—5, or none. *Stamens* 4—5. *Capsule* 4—5 valved, 1-celled, many seeded. *Tetrandria. Tetragynia.*

1. *S. procumbens* Linn.: perennial; stems procumbent, smooth, branched; leaves linear-mucronate; petals very short.

HAB. Borders of streams. N. Y. to Car. and W. to the banks of the Columbia river. July. 2f.—*Stems* 2—4 inches high. *Peduncles* solitary, larger than the leaves. *Flowers* small, white. *Pearl-wort.*

2. *S. apetala* Linn.: annual; stems erect or procumbent only at base, subpubescent; leaves linear-mucronate; flowers alternate; petals very minute or none.

HAB. Sandy fields. N. J. and Penn. May, June. ☉.—Stems numerous, erect, filiform. Flowers on long slender peduncles. Petals nearly obsolete, more slender and of a paler green than in the former. Annual Pearl-wort.

6. MOLLUGO. Linn.

Calyx 5-parted. *Petals* none. *Stamens* 3—5. *Styles* 3. *Capsule* 3-valved, 3-celled, many seeded.

Triandria. Trigynia.

M. verticillata Linn. : stems decumbent, dichotomous ; leaves verticillate, obovate-lanceolate, acute ; peduncles 1-flowered, verticillate.

HAB. Fields. Can. to Car. W. to the Columbia river. July—Sept. ☉.—Stems prostrate. Flowers small, white, on axillary peduncles. Indian Chickweed.

7. SPERGULA. Linn.

Calyx 5-parted. *Petals* 5, entire. *Stamens* 5—10. *Styles* 5. *Capsule* 1-celled, 6-valved, many seeded.

Decandria. Pentagynia.

1. *S. arvensis* Linn. : leaves whorled, with stipules at the base ; panicle dichotomous ; flowers decandrous ; peduncles of the fruit reflexed ; seeds spherical, somewhat hispid, black, with a narrow margin.

HAB. Sandy fields. Can. to Car. W. to the Columbia river. June—Aug. ☉.—Stem 6—12 inches high, swelling at the joints. Leaves narrow-linear, whorled. Flowers white, in a panicle.—According to Dr. Hooker the margin of the seed varies greatly in its breadth.—Fl. Scot.—Naturalized. Corn Spurrey.

2. *S. saginoides* Linn. : stem creeping ; leaves opposite, linear, smooth, awnless ; peduncles solitary, very long ; petals oblong, obtuse, as long as the calyx ; seeds kidney-form, punctate.—*S. decumbens* Ell.—*S. nodosa* Walt.

HAB. Sandy fields. N. J. to Car. W. to N. W. Coast of America. June. ☉.—Stem 2—4 inches long, decumbent. Flowers erect, white. Resembles *Sagina procumbens* very much.

Pearl-wort Spurrey.

8. STELLARIA. Linn.

Calyx 5-parted. *Petals* 5, bifid. *Stamens* 10, or by abortion 3—8. *Styles* 3. *Capsule* 1-celled, 6-valved at the apex, many seeded.

Decandria. Trigynia.

1. *S. media* Smith : stem procumbent, with an alternate pubescent, lateral line ; leaves ovate or lanceolate, very smooth ; upper ones sessile ; capsule deeply 6-valved, scarcely longer than the calyx ; seeds subreniform, rugose.—*Alsine media* Linn.

HAB. Road sides, &c. Can. and N. S. March—Nov. ☉.—
Stem spreading. *Peduncles* axillary and terminal, 1-flowered.
Petals white, deeply cleft. *Stamens* 5—10. *Chickweed.*

2. *S. pubera* Mich. : pubescent ; stem decumbent ; leaves ovate-oblong, sessile, acute, ciliate ; pedicels filiform dichotomal, recurved or deflexed ; petals longer than the calyx.

HAB. Rocky banks. Penn. to Geor. May, June. 2l. ? *Stem* 6—12 inches high, diffuse and dichotomous. *Flowers* large, axillary and terminal, on filiform pedicels.

3. *S. longifolia* Muhl. : smooth ; stem erect, square, weak ; leaves linear-acute, spreading, with the margins often scabrous ; panicle terminal, divaricate, very long, bracteate ; petals broad-obovate, 2-parted, about as long as the 3-nerved calyx.—*Spergulastrum gramineum* Mich.

—*Micropetalum gramineum* Pers.

HAB. Moist woods. N. S. and N. to lat. 64°. June. 2l.—*Stem* 12—15 inches high. *Petals* white, becoming longer than the calyx.—There appears to be no just ground for the separation of the genus *Micropetalum* from *Stellaria*. It is, however, countenanced by De Candolle.

4. *S. lanceolata* Torr. : very smooth, procumbent or ascending ; leaves lanceolate, acute at each end ; petals about as long as the calyx ; stigmas mostly 4, or wanting.—*Micropetalum lanceolatum* Pers.

HAB. Alpine swamps. N. S. June. 2l.—*Stem* 6—8 inches. *Flowers* solitary, axillary and terminal, on long slender peduncles. By some botanists this plant is considered identical with the former, while Dr. Hooker considers Dr. Torrey's plant as a variety of his *S. borealis*.

5. *S. borealis* Big. : stem spreading, angular, dichotomous ; leaves oval-lanceolate ; peduncles axillary, elongated, 1-flowered ; petals deeply cleft, about equal to the calyx.—*S. borealis*, var. *Hooker*.

HAB. White hills. N. H. and throughout Can. to the Arctic circle. July, Aug. 2l.—*Stem* spreading, angular. *Leaves* slightly connate. *Petals* white, deeply cleft.

6. *S. longipes* Goldie : weak, very smooth, glaucous ; leaves linear, subulate, spreading ; peduncles terminal, dichotomously branched ; bracts membranaceous ; pedicels much elongated ; petals broad-ovate, deeply bifid, a little longer than the obtuse and obscurely 3-nerved calyx.—*Goldie*. *Hooker*.

HAB. Woods near Lake Ontario.—*Flowers* large, white, in a terminal leafless panicle. A very minute description of this plant, and many interesting observations upon the Canadian species of this genus, will be found in *Hooker's Fl. Bor. Amer.*

9. ARENARIA. Linn.

Calyx 5-sepalled. *Petals* 5, entire. *Stamens* 10, or fewer by abortion. *Styles* 3. *Capsule* 1-celled, many seeded.

Decandria. Trigynia.

* *Leaves linear, with scarious stipules at base.*

1. *A. rubra* Linn. : stem prostrate, pilose ; leaves filiform, acute, flat, somewhat fleshy, mucronate, shorter than the internodes ; sepals lanceolate, somewhat obtuse, scarious on the margin ; peduncles axillary, at length deflexed ; seeds compressed, angular, roughish, not margined.

HAB. Sandy fields. Mass. June. ☉.—Stem spreading. Flowers small, red. Common Sand-wort.

2. *A. canadensis* Pers. : somewhat hispid ; leaves filiform, longer than the internodes ; sepals lanceolate, obtuse, with the margin broad and scarious ; stamens 5 ; pedicels at length deflexed ; seeds somewhat cordate, compressed ; radicle somewhat prominent.—*A. rubra*, var. *marina* Linn. Torr.—*A. marina* Smith. Big.

HAB. Salt marshes. Along the whole coast of North America.—Stem 3—8 inches long, procumbent, succulent. Flowers axillary, solitary, on short peduncles, reddish. Capsule subglobose, longer than the calyx. This plant has been confounded with *A. marina* of Smith ; but the latter is characterized by the seeds having a broad membranaceous border, and is considered by De Candolle identical with *A. media* of Linnæus. De Candolle, who appears to have seen specimens of the above plant, considers it distinct from *A. rubra*, though this opinion is opposed by the authorities above cited. It varies much in the number of its stamens, being frequently di-tri and pentandrous.

Sea Sand-wort.

** *Leaves linear, lanceolate, or rounded, without stipules.*

3. *A. squarrosa* Mich. : cespitose ; inferior leaves squarrose, imbricate, channelled, smooth ; stem simple, few-leaved ; flowers in dichotomous panicles, erect ; sepals roundish-ovate, smooth ; petals obovate, much longer than the calyx ; capsules oval, 3-valved, exceeding the calyx ; valves obtuse.—*A. caroliniana* Walt.

HAB. Pine barrens. N. J. to Car. May—Aug. 24.—Stem 6—8 inches high, much divided near the base. Flowers white, in a small terminal panicle. Squarrose Sand-wort.

4. *A. stricta* Mich. : stems numerous, erect, smooth, filiform ; leaves subulate-linear, erect, subfasciculate, spreading ; panicle few-flowered ; sepals ovate-lanceolate, conspicuously striate, half as long as the petals.

HAB. Mountains. Can. to Car. May, June. 24.—Stems 6—12 inches high. Leaves more linear than in the preceding, and not so much crowded near the base.

5. *A. glabra* Mich. : very smooth ; stems numerous, erect, filiform ; leaves subulate-linear, flat, spreading ; pedicels 1-flowered, elongated, divaricate ; sepals oval, obtuse, shorter than the petals.—*S. uniflora* Walt.

HAB. Mountains. N. H. N. Y. to Car. June. 24.—Stems 4—6 inches high, erect, slender. Flowers white, large.

6. *A. serpyllifolia* Linn. : stem dichotomous, diffuse ; leaves ovate, acute, sessile, somewhat rugose, smooth, ciliate ; sepals lanceolate,

acute, 3-nerved, larger than the corol ; capsule ovate, 6-valved, equaling the calyx ; seeds exactly reniform, rugose.

HAB. Sandy fields. N. Y. to Car. May—July. ☉.—Stem mostly decumbent, 3—8 inches long. Flowers axillary and terminal, solitary.

7. *A. lateriflora* Linn. : stem filiform, branched ; leaves obtuse, ciliate, nerved ; peduncles lateral, solitary, elongated, 1—2 flowered ; one of the pedicels with 2 opposite bracts near the middle ; sepals ovate, obtuse, shorter than the petals ; capsule ovate, obtuse, longer than the calyx.

HAB. Meadows. N. S. North to Hudson's bay. June. 2f.
—Stem 5—10 inches high, erect, filiform. Peduncles axillary, very slender, forked. Flowers white.

8. *A. peploides* Linn. : stem dichotomous ; leaves ovate, acute, fleshy, approximate ; flowers solitary, on short peduncles ; sepals oblong, acutish, about as long as the corol ; capsule globose, depressed, 3-valved ; seeds numerous, black.

HAB. Sea coast. Mass. N. J. N. to Arctic America. June. 2f.
—Stem 8—12 inches high. Flowers axillary, sessile. Petals white, membranaceous, spatulate.

10. CERASTIUM. Linn.

Calyx 5-parted. *Petals* 5, bifid. *Stamens* 10. *Styles* 5. *Capsule* 1-celled, cylindrical or globose, dehiscent at the apex with 10 teeth. *Decandria. Pentagynia.*

1. *C. vulgatum* Linn. : viscidly pubescent, pale green ; stems numerous, cespitose, suberect ; leaves ovate, obtuse, hirsute ; flowers dichotomous, subumbelled, longer than the peduncles ; petals oblong, emarginate, scarcely longer than the calyx ; capsule oblong, tapering, as long again as the calyx.

HAB. Fields and hills. Can. to Car. May—Aug. ☉.—Stem 6—10 inches high. Flowers white. Introduced.

Mouse-ear Chickweed.

2. *C. viscosum* Linn. : hairy and viscid, deep green ; stems numerous, erect ; leaves lanceolate-oblong ; flowers in dichotomous umbels, shorter than their pedicels ; capsule somewhat incurved, terete, as long again as the calyx.

HAB. Fields and road sides. Can. to Car. May—Aug. 2f.—
Stem 6—12 inches high. Leaves rather obtuse. Petals white, obovate, a little longer than the calyx.

3. *C. semidecandrum* Linn. : hirsute and viscid ; stems numerous, erect ; leaves ovate-lanceolate ; flowers pentandrous, somewhat umbelled, shorter than their pedicels ; petals slightly notched ; capsule terete, deflexed, as long again as the calyx.

HAB. Dry hills. N. S. May—Aug. ☉.—Perhaps only a variety of the preceding. De Candolle places the *C. semidecandrum* of American authors, as a variety under *C. vulgatum*.

4. *C. arvense* Linn.: stems ascending; leaves linear-lanceolate, obtuse, more or less hairy, especially at base; flowers few, terminal; peduncles deflexed, pubescent; petals twice as long as the calyx; capsule oblong-cylindrical, scarcely longer than the calyx.

HAB. Fields and rocky hills. N. S. May—Aug. 2f.—Root creeping. Stems 4—8 inches long, ascending, slender, somewhat cespitose. Leaves crowded at the base of the stem, short, ciliate at base. Flowers large, white, 2 or 3 on terminal pedicels. Petals deeply cleft, white, twice as long as the calyx. This is undoubtedly a native near Albany, as it would seem to be also, according to Dr. Barton, on the banks of the Schuylkill and Delaware. Fl. Phil. i. 216. Dr. Bigelow credits it to the vicinity of Boston, but thinks it merely naturalized. Field Chickweed.

5. *C. tenuifolium* Pursh.: pubescent-cespitose; leaves narrow-linear, longer than the internodes; flowers on long peduncles, mostly 3, from the top of each stem; petals obovate, emarginate, thrice as long as the acute calyx.—*C. dichotomum* Muhl.?

HAB. Rocky places. N. S. June. 2f.—Stems numerous, erect. Flowers on long peduncles, 3 from the summit of each stem. Resembles the preceding, but has longer and narrower leaves, and longer and less deeply cleft petals. But it may, after all, be a mere variety. Sprengel considers *C. pennsylvanicum* of Horne-mann identical with it.

6. *C. pubescens* Goldie: pubescent-hirsute; stem deflexed-pilose; leaves linear-lanceolate, longer than the internodes; panicle terminal, about 3—6-flowered; petals acutely emarginate, twice as long as the calyx.

HAB. Kingston, U. Can. Bellows' Falls, N. H. June. 2f.—This species was first described by Mr. Goldie. Edin. Phil. Jour. vi. 327. I have specimens of the same plant collected at Bellows' Falls, by Mr. G. W. Clinton. They resemble those of the preceding species, but the stems are much longer and more slender, and are branched from below in a dichotomous manner; the peduncles also, are much longer, and the flowers more numerous: the sepals have a white shining and scarious margin.

7. *C. nutans* Raf.: viscid and pubescent; stems erect, straight, deeply striate; leaves elongated, distant, lanceolate-linear; flowers subumbelled, on long petioles; petals oblong, bifid at the tip, longer than the calyx; capsule nodding, twice as long as the calyx.—*C. glutinosum* Nutt.—*C. longe pedunculatum* Muhl.

HAB. Rocky hills. N. S. June. 2f.—Stems numerous, 8—12 inches high, very viscid. Lower leaves subspathulate. Flowers terminal, in a loose dichotomous panicle.

8. *C. oblongifolium* Torr.: cespitose, pubescent; stems erect, terete, even; leaves lanceolate-oblong, rather acute, shorter than the joints; flowers terminal, shorter than their pedicels; petals obovate, bifid at the tip, twice the length of the calyx.—*C. bracteatum* Raf.?

HAB. Mountains. Mass. June. 2f.—Stems 8—10 inches high. Flowers terminal, few, in a dichotomous panicle.

9. *C. connatum* Beck : very hairy, diffuse ; leaves somewhat obovate, connate ; flowers in dense clusters ; petals 2-cleft, a little longer than the acute calyx ; capsule cylindrical, straight, twice as long as the calyx.—*C. hirsutum* Muhl. Ell. Torr.—*C. semidecandrum* Walt.

HAB. N. Y. Del. S. to Car. May, June. ☉.—*Stem* procumbent. *Flowers* white, in terminal clusters. I have changed the name given to this plant by the authors above quoted, in consequence of finding a foreign *C. hirsutum*, in De Candolle's *Prodromus*, which appears to be quite distinct from this species.

ORDER XIX. ELATINÆ. Lind.

Sepals 3—5, distinct, or slightly connate at the base. *Petals* hypogynous, alternate with the sepals. *Stamens* equal in number to or twice as many as the petals. *Ovary* 3—5-celled ; *styles* 3—5 ; *stigmas* capitate. *Capsule* 3—5 celled, 3—5 valved. *Seeds* numerous, with a straight *embryo*, whose *radicle* is next the hilum ; *albumen* none.

Annuals, found in marshes. *Stems* fistulous, rooting. *Leaves* opposite.

1. CRYPTA. Nutt.

Calyx 2-leaved, inferior. *Corol* 2—3 petalled, closed. *Style* almost wanting. *Stigma* obtuse. *Capsule* 2—3 celled, 2—3 valved ; *cells* 4—5 seeded.

Diandria. Monogynia.

C. minima Nutt : stems prostrate, creeping and rooting ; leaves cuculate-obovate, opposite, entire, obtuse, 1-nerved ; flowers very minute, axillary, sessile, alternate.—*Peplis americana* Pursh.

HAB. Banks of streams. Throughout the U. S. Aug. ☉.—*Stems* prostrate, with assurgent branches. *Leaves* opposite, obovate or oval. *Flowers* sessile, with 2—3 stamens. *Petals* roundish, white.—For a very minute description of this little plant by Mr. Nuttall, see *Jour. Phil. Acad.* i. 117. According to Mr. Arnott, it belongs to the genus *Elatine*, and is a congener, and indeed very closely allied, to *E. triandra*. *Edin. Jour. Nat. & Geog. Science*, i. 430.

ORDER XX. LINEÆ. De Cand. Lind.

Sepals 3—4—5, persistent, with an imbricated æstivation. *Petals* equal in number to the sepals, hypogynous, unguiculate, with a twisted æstivation. *Stamens* as many as the petals, and alternate with them (with intermediate teeth or abortive stamens) arising from an annular torus ; *anthers* ovate, erect. *Ovary* with as many (rarely fewer) cells and styles as

stamens ; *stigmas* capitate. *Capsules* generally pointed with the hardened base of the styles, many-celled ; each cell partially divided in two by an imperfect spurious dissepiment, and opening by two valves at the apex. *Seeds* solitary, in each spurious cell, compressed, pendulous. *Albumen* thin, fleshy ; *embryo* straight, with the radicle next the hilum ; *cotyledons* flat.

Herbs or small *shrubs*. *Leaves* entire, usually alternate. *Flowers* terminal, with the petals fugitive.

1. LINUM. Linn.

Sepals 5, persistent. *Petals* 5, unguiculate. *Stamens* 5, with the filaments united at base. *Styles* 5, very rarely 3. *Capsule* superior, subglobose, 10-valved, 10-celled. *Seeds* solitary, ovate, compressed. *Pentandria. Pentagynia.*

1. *L. virginianum* Linn. : stem erect, slender, smooth ; radical leaves ovate and spatulate ; those of the stem linear-lanceolate, alternate ; panicle lax, corymbose ; sepals acute ; capsule globose, awnless.

HAB. Hills and fields. N. Y. to Car. July, Aug. ☉.—*Stem* 1—2 feet high, slender. *Flowers* small, yellow, in a dichotomous panicle. *Virginian Flax.*

2. *L. usitatissimum* Linn. : stem mostly solitary, round, smooth, simple, branched above ; leaves lanceolate, alternate ; flowers large, on peduncles ; segments of the calyx ovate, acute ; petals crenate ; capsule roundish, acuminate.

HAB. Fields. June, July. ☉.—*Flowers* large, blue. Introduced. *Common Flax.*

ORDER XXI. MALVACEÆ. De Cand. Lind.

Sepals 5, very seldom 3 or 4, more or less united at the base, with a valvate æstivation, often bearing external bracts forming an involucre. *Petals* equal in number to the sepals, hypogynous. *Stamens* indefinite ; *filaments* monadelphous, often bearing the petals on their base. *Anthers* 1-celled, reniform. *Ovary* formed by the union of several carpels round a common axis, either distinct or cohering ; *styles* as many as the carpels, united or free ; *stigmas* variable. *Fruit* capsular or berried ; its carpels being either one or many-seeded, sometimes united in one, sometimes separate or separable. *Seeds* sometimes hairy. *Albumen* none, or small ; *embryo* curved with twisted and doubled *cotyledons*.

Herbs, trees or shrubs. Leaves alternate, more or less divided, stipulate.

1. MALVA. Linn.

Calyx surrounded by a 3, rarely 5—6-leaved involucre. *Bracts* oblong or setaceous. *Capsules* numerous, 1-celled, 1-seeded, arranged circularly. *Monadelphica. Polyandria.*

1. *M. sylvestris* Linn. : stem erect, herbaceous, branched, hairy ; leaves large, roundish, with 7 somewhat acute lobes ; flowers large, axillary, on short pedicels ; pedicels and petioles hairy ; petals obovate, thrice as long as the calyx.

HAB. Fields. July, Aug. 2l.—Stem 2—3 feet high. Flowers 3—4 together, reddish-purple, veined. Introduced.

High Mallows.

2. *M. rotundifolia* Linn. : stem somewhat prostrate ; leaves roundish, cordate, obtusely 5—7 lobed ; peduncles bent downwards, and with the petioles pubescent ; flowers axillary ; corol twice the length of the calyx.

HAB. Cultivated grounds. Can. to Car. W. to Miss. June—Oct. 2l.—Root fusiform. Flowers small, pink, on pedicels, 2—3 together. Extensively naturalized.

Low Mallows.

2. ALTHEA. Linn.

Calyx surrounded by a 6—9 cleft involucre. *Capsules* numerous, 1-seeded, arranged circularly.

Monadelphica. Polyandria.

A. officinalis Linn. : leaves soft tomentose on both sides, cordate and ovate, dentate, entire or 3 lobed ; peduncles axillary, many flowered, much shorter than the leaves.

HAB. Near salt marshes. Aug. Sept. 2l.—Stem 2 feet high. Flowers large, purple. Introduced.

Marsh Mallows.

3. HIBISCUS. Linn.

Calyx surrounded by an involucre which is often many-leaved. *Stigmas* 5. *Capsule* 5-celled ; cells many seeded, or rarely 1-seeded.

Monadelphica. Polyandria.

1. *H. virginicus* Linn. : leaves acuminate, unequally toothed, sub-villose ; lower ones undivided, cordate ; upper ones ovate-cordate, 3-lobed ; pedicels longer than the petiole ; flowers cernuous ; pistils nodding ; capsule hispid.—*H. clypeatus* Walt.

HAB. Salt marshes. N. Y. to Car. Aug. 2l.—Stem 3 feet high. Flowers in paniculate racemes, small, rose coloured. Involucre 8—9 leaved, tomentose.

2. *H. moscheutos* Linn. : leaves ovate, acuminate, serrate, tomentose beneath ; petioles bearing the peduncles ; calyx tomentose ; capsule smooth.—*H. palustris* Walt.

HAB. Swamps and salt marshes. N. Y. to Car. Aug. 2f.—
Stem 4—6 feet high. Flowers large, white with a purple centre.

3. *H. palustris* Linn. : leaves ovate, toothed, somewhat 3-lobed, white-tomentose beneath ; pedicels axillary, distinct from the petioles, auriculate above the middle.

HAB. Salt marshes. Can to Car. Aug. 2f.—Stem 3—4 feet high. Flowers purple, smaller than the preceding.

4. *H. militaris* Willd. : leaves 3-lobed, hastate, acuminate, serrate, smooth ; pedicels articulate in the middle ; corol subcampanulate ; capsule ovate, acuminate, smooth ; seeds silky.—*H. virginicus* Walt.—*H. hastatus* Mich.

HAB. Banks of streams. Penn. to Car. W. to Arkansas. Aug. 2f.—Stem 3—4 feet high. Flowers large, purple, axillary, solitary.

5. *H. trionum* Linn. : leaves toothed ; lower ones scarcely divided ; upper ones 3-parted ; lobes lanceolate, middle one very long ; calyx inflated, membranaceous, nerved.

HAB. Apparently naturalized near Albany, N. Y. July. 3.—
Stem 2 feet high. Flowers yellowish-white, with the lower part
Flower-of-an-Hour.

4. SIDA. Linn.

Calyx naked, 5-cleft, often angled. *Style* many cleft at the top. *Capsules* numerous, arranged circularly, 1-celled, 1—3 seeded. *Monadelphia. Polyandria.*

1. *S. spinosa* Linn. : leaves ovate-lanceolate, toothed, with the tubercles at the base spiny ; pedicels axillary, solitary, shorter than the stipules and petioles ; capsules 5, bi-rostrate.

HAB. Pine barrens. Penn. to Car. W. to Miss. July, Aug. 3.—
Stem 1—2 feet high, branched. Flowers solitary, yellow.
Leaves sometimes subcordate.

2. *S. napaea* Willd. : leaves palmately 5-lobed, smooth ; lobes oblong, acuminate, toothed ; peduncles many-flowered ; capsules 10, awnless, acuminate.—*Napaea lavis* Linn.

HAB. Rocky places. Penn. to Virg. ; rare, Pursh. Stem 3—4 feet high. Flowers small, white.

3. *S. dioica* Willd. : leaves palmately 7-lobed, rough ; lobes lanceolate, incisely toothed ; peduncles many-flowered, bracteate, subcorymbd ; flowers diœcious ; capsules 10, awnless.—*Napaea dioica* and *N. scabra* Linn.

HAB. Stony ground. N. S. Torr. Oct. 2f.—Stem 4—5 feet high. Flowers small, white.

4. *S. abutilon* Linn. : leaves roundish-cordate, acuminate, toothed, tomentose ; peduncles shorter than the petioles ; capsules 15, truncate, birostrate, hairy.

HAB. Waste ground. N. S. July, Aug. ☉.—Stem 3—5 feet high. Leaves large. Flowers orange. Introduced.

Indian Mallows.

ORDER XXII. TILIACEÆ. *De Cand. Lind.*

Sepals 4—5, with the æstivation valvate and rarely imbricate. *Petals* 4—5, entire, usually with a little pit at their base, rarely wanting. *Stamens* generally indefinite, hypogynous, distinct; *anthers* 2-celled, dehiscing longituidinally. *Torus* with 4—5 glands at the base of the petals. *Ovary* single, composed of from 4—10 carpels; *style* 1; *stigmas* as many as the carpels. *Fruit* dry, of several cells. *Seeds* numerous; *embryo* erect in the axis of fleshy *albumen*, with flat foliaceous cotyledons.

Trees or *shrubs*, with simple stipulate alternate leaves and axillary flowers.

1. *TILIA*. *Linn.*

Calyx 5-parted, deciduous. *Petals* 5, naked, or with a small scale within. *Stamens* many; *filaments* free, or somewhat in sets. *Ovary* globose, villous, 5-celled; cells 2-seeded, (*Nutt.*) coriaceous, by abortion 1-celled, 1—2 seeded.

Polyandria. Monogynia.

1. *T. glabra Vent.*: leaves deeply cordate, abruptly acuminate, acutely serrate, subcoriaceous, smooth; flowers in cymes; petals truncate at the apex, crenate; style as long as the petals; fruit ovate, somewhat ribbed.—*T. americana Linn. Mich. f. T. canadensis Mich.*

HAB. Woods. Can. to Car. W. to Miss. June. A large tree with yellowish white flowers. The wood is white and soft, and much used by cabinet and coach makers.

Linn, or Linden. Bass Wood.

2. *T. laxiflora Mich.*: leaves cordate, gradually acuminate, serrate, membranaceous, smooth; flowers in loose panicles; petals emarginate; styles longer than the petals; fruit globose.

HAB. Near the sea coast. Mar. to Geor. May. 2f.—A very distinct species, though generally confounded with the former. *Pursh.*

3. *T. pubescens Ait.*: leaves truncate at the base, subcordate, oblique, denticulate-serrate, pubescent beneath; petals emarginate; styles longer than the petals; fruit globose, smooth.—*T. americana Walt.*

HAB. Banks of streams. N. S. to Geor. June. ½.—A large tree. Flowers white, in axillary cymes.

ORDER XXIII. HYPERICINEÆ. *De Cand. Lind.*

Sepals 4—5, distinct or cohering, persistent, unequal, with glandular dots. *Petals* 4—5, hypogynous, with a twisted æstivation and oblique veins, often having black dots. *Stamens* indefinite, hypogynous, in three or more parcels; *anthers* versatile. *Ovary* single, superior; *styles* several, rarely connate; *stigmas* simple, occasionally capitate. *Fruit* a capsule or berry, of many valves and many cells; the edges of the former being curved inwards. *Seeds* minute, indefinite, usually tapering; *embryo* straight; *albumen* none; *radicle* next to the hilum, inferior.

Herbs or *shrubs*, with a resinous juice. *Leaves* opposite, entire, dotted, occasionally alternate and crenate. *Flowers* generally yellow.

1. HYPERICUM. *Linn.*

Capsule membranaceous. *Styles* 3—5. *Stamens* many, polydelphous at base, rarely indefinite. *Petals* 5. *Sepals* 5, unequal, more or less united at base.

Polyandria. Di-Pentagynia.

* *Stamens* numerous. *Styles* 5. *Flowers* mostly terminal, large, yellow.

1. *H. ascyroides* Willd. : smooth; stem simple, square, winged at the base; leaves sessile, oblong-lanceolate, acute; calyx ovate-lanceolate; styles free, as long as the stamens.—*H. macrocarpum* Mich.

HAB. River banks. Can. and N. S. July. 24.—Stem 2 feet high. *Flowers* and *leaves* large. *Capsules* nearly as large as nutmegs.

2. *H. kalmianum* Willd. : frutescent, much branched; branches square, leaves linear-lanceolate; flowers few, in a terminal corymb; calyx lanceolate, somewhat obtuse.

HAB. Wet rocks. N. Y. to Virg. July, Aug. 2.—Stem 3—5 feet high. *Flowers* large. This species has been found near Niagara Falls by Dr. Asa Gray.

** *Stamens* numerous, somewhat definite (9—15—18) polyadelphous. *Styles* 3. *Flowers* reddish.

3. *H. virginicum* Linn. : stem suffruticose, terete; leaves oblong, obtuse, subclasping, punctate, very obtuse; flowers peduncled, axillary and terminal; calyx lanceolate; stamens 9—12, slightly united at base.—*Elodea campanulata* Pursh.

HAB. Bogs and meadows. Can. to Car. July—Sept. 24.—Stem 2 feet high. *Leaves* opposite, dotted, glaucous beneath. *Flowers* few, in a panicle, yellowish-red, middle sized.

*** *Stamens numerous, indefinite. Styles mostly 3. Flowers yellow.*

4. *H. angulosum* Mich.: stem herbaceous, square, erect; leaves distant, elongated, ovate, subclasping, sinuate on the margin, acute, not punctate; flowers axillary, solitary, in a dichotomous panicle; calyx lanceolate, acute, somewhat keeled.—*H. denticulatum* Walt.

HAB. Cedar swamps. N. J. to Car. June, July. 2f.—Stem 12—18 inches high, branched towards the summit. Flowers scattered in the panicle and alternate, orange-coloured. Styles 3, often united.

5. *H. cistifolium* Lam.: stem angular; leaves ovate-oblong, somewhat acute, black-punctate beneath, subclasping, revolute on the margin; flowers in dichotomous corymbs; calyx ovate; styles united.—*H. adpressum* Bart.?

HAB. Western part of N. Y. Dr. Asa Gray. July. 2f.

6. *H. punctatum* Linn.: stem terete, black-punctate; leaves ovate-lanceolate, obtuse, subclasping; flowers in dense corymbs; calyx lanceolate, acute.—*H. corymbosum* Willd. Pursh.—*H. maculatum* Walt.

HAB. Shady woods. Can. to Car. June. 2f.—Stem 2 feet high. Flowers in a compact panicle or corymb. Styles 3, longer than the stamens. Whole plant, except the filaments and styles, spotted with black dots.

7. *H. perforatum* Linn.: stem ancipital; leaves obtuse, ovate-elliptic, and with the lanceolate calyx pellucid-punctate; flowers panicled; anthers with black punctures; styles diverging.

HAB. Fields. N. S. June—Aug. 2f.—Stem a foot high, branched. Flowers yellow. A pernicious weed, producing, according to Dr. Darlington, troublesome sores upon horses and horned cattle, where it comes in contact with them. It would seem that the dew which collects on the plant, becomes active in this way.—*Fl. Cestrica*. Introduced. *St. John's Wort*.

8. *H. parviflorum* Willd.: stem erect, much branched, smooth, square; leaves ovate, subcordate, obtuse, sessile, obscurely 5-nerved, pellucid-punctate; flowers in a dichotomous corymb; calyx linear-lanceolate, longer than the petals.—*H. quinquenervium* Walt. Mich.

HAB. Overflowed grounds. Throughout Can. and the U. S. June—Aug. 2f.—Stem 6—12 inches high. Flowers very small, yellow, solitary in the divisions of the stems.

9. *H. canadense* Linn.: stem erect and straight, 4-winged; leaves linear, attenuate at the base, rather obtuse; panicle elongated, dichotomous; calyx lanceolate; styles very short; capsule long, conical, coloured.

HAB. Gravelly soil. Can. to Car. June—Aug. 2f.—Stem 6—12 inches high. Flowers small, yellow. Capsule much longer than the calyx and of a reddish colour, by which, together with its linear leaves, it can be readily distinguished from the preceding.

10. *H. sarothra* Mich.: erect, much branched above; branches setaceous; leaves minute, subulate, appressed; flowers terminal, subsoli-

tary ; stamens 5—10 ; capsules oblong, 1-celled.—*H. nudicaule* Walt.
—*Sarothra gentianoides* Willd.

HAB. Sandy fields. N. E. to Car. Pursh. June—Aug. 2f.—
Stem 3—6 inches high. Leaves and flowers minute. Stamens
very variable in number.

11. *H. prolificum* Linn. : stem shrubby, terete ; branches angled ;
leaves linear-lanceolate, revolute on the margin, pellucid-punctate ;
corymbs axillary and terminal, few-flowered ; calyx ovate-lanceolate ;
stamens very numerous.

HAB. N. Y. to S. Car. July. 1f.—Shrub 2—3 feet high, with
much compressed branches. Leaves 2 inches long. Peduncles
generally 3-flowered, the intermediate one nearly sessile.

12. *H. galioides* Linn. : stem terete, straight, somewhat shrubby ;
branches square ; leaves linear-sessile, revolute on the margin, acute,
punctate ; panicles terminal, dichotomous and divaricate ; calyx linear,
at length reflexed ; styles often united.

HAB. Sandy moist places. N. J. to Car. July. 2f.—Stem 2
feet high. Leaves fasciculate.—Scarcely differing from *H. fasci-
culatum* of Michaux.

2. ASCYRUM. Linn.

Calyx 4-sepalled ; 2 outer sepals smaller. Petals 4. Sta-
mens many, scarcely united at base. Styles 1—3.

Polyandria. Di-Pentagynia.

1. *A. cruz-andreae* Linn. : stems numerous, suffruticose, terete, with
erect branches ; leaves ovate-linear, obtuse ; inner sepals suborbicu-
lar ; pedicels with 2 bracts ; flowers sessile ; styles 1—2.—*A. multi-
caule* Mich.

HAB. Sandy fields. N. J. to Car. July. 2f.—Stems 1—2 feet
high. Flowers solitary and axillary, nearly sessile, pale yellow.
Mr. Elliott remarks that this plant varies so much in the size
and number of its leaves, in its peduncles, and in the number of
its styles, that it merits culture to determine whether more than
one species are not included under this name. *St. Peter's Wort.*

2. *A. stans* Mich. : stem fruticose, winged, straight ; leaves ovate-
elliptical, obtuse, glaucous ; inner sepals cordate, orbicular ; stamens
united at the base ; styles 2.—*A. hypericoides* Pursh, not of Linn.

HAB. Overflowed sandy soil. N. J. to Car. July, Aug. 2f.—
Stem 1—2 feet high. Flowers larger than the last, yellow.

ORDER XXIV. ACERINEÆ. De Cand. Lind.

Calyx 5, or rarely 4—9-parted, with an imbricate æstiva-
tion. Petals equal in number to the lobes of the calyx, with
which they alternate, rarely wanting. Stamens definite,
usually 8, rarely 5 or 12 ; anthers oblong. Torus discoid.

Ovary 2-lobed, 2-celled; *style* 1; *stigmas* 2. *Fruit* of two indehiscent winged carpels (*samaræ*,) each 1-celled, with 1 or 2 seeds. *Seeds* erect; *albumen* none; *embryo* curved or convolute, with foliaceous wrinkled *cotyledons* and an inferior *radicle*.

Trees, with opposite, simple, rarely pinnate leaves. *Flowers* often polygamous, sometimes apetalous.

1. ACER. Linn.

Flowers mostly polygamous. *Calyx* 5-lobed, sometimes 5-parted. *Stamens* rarely 5, often 7—9. *Samaræ* 2, winged, united at base, by abortion 1-seeded.

Octandria. Monogynia.

* *Flowers in corymbs or fascicles.*

1. *A. rubrum* Linn.: leaves generally 5-lobed, cordate at the base, unequally and incisely toothed, glaucous beneath; the sinuses acute; flowers aggregated in about fives, on rather long pedicels; germs glabrous.

HAB. Moist woods. Can. to Flor. April.—A tree from 20—50 feet high. *Flowers* 5-petalled, pentandrous. *Red Maple.*

2. *A. eriocarpum* Mich.: leaves palmately 5-lobed, truncate at the base, smooth and whitish-glaucous beneath; sinuses obtuse; lobes acuminate, incisely toothed; flowers aggregated, on short pedicels; germs tomentose.—*A. dasycarpum* Willd.

HAB. Banks of streams. Can. to Geor. April, May.—A large tree. *Flowers* greenish, pentandrous, apetalous. *White or Soft Maple.*

3. *A. barbatum* Mich.: leaves ovate-cordate, with 3 short lobes, unequally serrate, glaucous beneath and pubescent on the nerves; corymbs sessile; peduncles hairy; those of the sterile flowers branched; of the fertile simple; calyx bearded within; fruit smooth; wings erect.—*A. carolinianum* Walt.

HAB. Cedar swamps. N. S. to Car. April.—A small tree. *Leaves* small. *Flowers* pale green. *Calyx* densely bearded within.

4. *A. saccharinum* Linn.: leaves palmately 5-lobed, subcordate at base, petioled, glaucous beneath; lobes acuminate; peduncles corymbose, loose, nodding, hairy; fruit glabrous; wings divergent.

HAB. In woods. Can. to Geor. W. to Miss. April.—A large tree. *Flowers* yellowish, on long filiform peduncles. *Petioles* smooth.—Valuable for its timber and for the sugar obtained from its sap. *Sugar Maple.*

5. *A. nigrum* Mich.: leaves palmately 5-lobed, cordate, with the sinus closed, pubescent beneath; lobes divaricate, sinuate-dentate;

flowers on long slender peduncles, corymbed ; fruit glabrous, turgid at base ; wings diverging.

HAB. Mountainous situations. Ver. to Car. April.—A large tree. Flowers yellowish. Petioles pubescent.

Black Sugar Maple.

** *Flowers in racemes.*

6. *A. striatum* Mich. : leaves with 3 acuminate lobes, rounded at the base, acutely dentate, smooth ; racemes simple pendulous ; petals oval ; fruit smooth ; wings somewhat diverging.—*A. pennsylvanicum* Linn.

HAB. Shady rocks. N. S. May. ♀.—Shrub 10 or 12 feet high ; trunk beautifully striate. Leaves rarely undivided. Flowers greenish-yellow, 10—12 in a raceme.

Striped Maple. Moose Wood.

7. *A. spicatum* Linn. : leaves small, 3—5-lobed, acute, dentate, cordate, pubescent beneath ; racemes spikeform, erect ; petals linear ; fruit smooth ; wings somewhat diverging.—*A. montanum* Ait. Pursh. Torr.

HAB. On mountains. Can. to Geor. May.—Shrub 8—10 feet high. Flowers greenish, small.

2. NEGUNDO. De Cand.

Flowers dioecious. *Calyx* minute, unequally 4—5-toothed. *Petals* none. *Anthers* 4—5, linear, sessile.

Octandria. Monogynia.

N. fraxinifolium Nutt. : leaves ternate and pinnate ; leaflets unequally and coarsely dentate ; odd one often 3-lobed ; flowers in simple pendulous racemes.—*Acer negundo* Linn. Mich.

HAB. River banks. Penn. to Geor. W. to Rocky Moun. April.—A large tree with greenish flowers.

Ash-leaved Maple. Box Elder.

ORDER XXV. HIPPOCASTANÆ. De Cand. Lind.

Calyx campanulate, 5-lobed. *Petals* 5, or 4 by the abortion of one of them, unequal, hypogynous. *Stamens* 7—8, distinct, unequal, inserted upon a hypogynous disk ; *anthers* somewhat incumbent. *Ovary* roundish, 3-cornered, 3-celled ; *style* 1, filiform, conical, acute ; *ovules* 2 in each cell. *Fruit* coriaceous, 1—2 or 3-valved, 1—2 or 3-celled, 1, 2 or 3-seeded. *Seeds* large, roundish, with a smooth shining coat, and a broad pale hilum ; *albumen* none ; *embryo* curved, inverted, with fleshy, very thick, gibbous, cohering *cotyledons*, germinating under ground ; *plumula* unusually large, 2-leaved ; *radicle* conical, curved, turned towards the hilum.

Trees or shrubs. Leaves opposite, compound. Flowers in terminal racemes.

1. *ÆSCULUS. Linn.*

Calyx campanulate. *Petals* 4—5, expanded ; *limb* ovate. *Filaments* recurved backward. *Capsules* echinate.

Heptandria. Monogynia.

Æ. glabra Willd. : leaves quinate, very smooth ; leaflets ovate acuminate ; corol 4-petalled, spreading, with the claws as long as the calyx ; stamens longer than the corol ; capsules echinate.—*Æ. echinata Muhl.* ?—*Pavia Ohiensis Mich. f.*

HAB. Woods. Penn. W. to Miss. May.—A large shrub or small tree. *Flowers* yellowish-white, in terminal racemose panicles. *Buck-eye.*

ORDER XXVI. AMPELIDEÆ. *De Cand.*

Calyx small, nearly entire. *Petals* 4 or 5, sometimes cohering above, and calyptriform, with a valvate æstivation. *Stamens* equal in number to the petals, inserted upon the disk, sometimes sterile by abortion ; *filaments* distinct, or slightly cohering at the base ; *anthers* ovate, versatile ; *ovary* superior, 2-celled ; *style* 1, very short ; *stigma* simple ; *ovules* erect, definite. *Berry* globose, pulpy, 2- (or often by abortion 1-) celled. *Seeds* 4 or 5, or fewer by abortion, bony, erect ; *albumen* hard ; *embryo* erect, about one half the length of the albumen ; *radicle* slender ; *cotyledons* lanceolate.

Climbing shrubs with tumid separable joints. *Leaves* simple or compound.

1. *AMPELOPSIS. Mich.*

Calyx nearly entire. *Petals* 5. *Style* 1. *Stigma* capitate. *Ovary* not immersed in the disk, 2—4-seeded.

Pentandria. Monogynia.

1. *A. cordata Mich.* : stem climbing, with slender branches ; leaves cordate, acuminate, toothed and angular ; nerves beneath pubescent ; racemes dichotomous, few-flowered.—*Cissus ampelopsis Pers. Pursh.*

HAB. Banks of streams. Penn. to Car. W. to Arkansa. June, July. 5.—*Leaves* cordate, often straight at base as if truncate. *Panicles* opposite the leaves. *Berries* pale red.

2. *A. hederacea Mich.* : stem climbing and rooting ; leaves digitate, by fives, on long petioles, glabrous ; leaflets connected at base, lance-

olate, acuminate, dentate towards the apex ; panicle compound, dichotomous, opposite the leaves ; nectary none.—*Cissus hederacea* Pers.
Vitis hederacea Willd.

HAB. Woods. Penn. to Car. W. to Arkansa. June, July. ♀.
—Flowers green. Berries dark blue. Common Creeper.

3. *A. hirsuta* Muhl. : leaves pubescent on both sides ; leaflets ovate, acuminate, coarsely toothed.—*Cissus hederacea*, var. *hirsuta* Pursh.

HAB. Alleghany mountains. Pursh. Still a doubtful species.

2. VITIS. Linn.

Calyx somewhat 5-toothed. *Petals* 5, cohering at their apex, deciduous. *Stamens* 5. *Style* none. *Berry* 2-celled, 4-seeded ; cells and seeds often abortive.

Pentandria. Monogynia.

1. *V. labrusca* Linn. : leaves very large, broad-cordate, sub-3-lobed, acutely toothed, glabrous above, and with the peduncles tomentose beneath ; racemes small, paniced ; berries large.

HAB. Woods. Can. to Flor. June, July. ♀.—Stem climbing to a great height. Flowers greenish. Berries dark purple.—Undergoes great changes by cultivation. Fox Grape.

2. *V. astivalis* Mich. : stem long and slender ; leaves broad-cordate, 3—5-lobed, younger ones ferruginous-tomentose beneath, when old nearly smooth ; sinuses rounded ; racemes opposite the leaves, rather crowded, oblong ; berries small.—*V. intermedia* Muhl.

b. sinuata Pursh : leaves sinuate-palmate, coarsely dentate ; sinuses rhomboidal.

HAB. Woods. On banks of streams. N. Y. to Car. W. to Miss. June. ♀.—Berries deep blue or purple ; ripen in August.

Summer Grape.

3. *V. vulpina* Linn. : leaves cordate, abruptly acuminate, incisely toothed, smooth on both sides ; racemes loose, many flowered ; berries small.—*V. cordifolia* Mich. Pursh.

HAB. River banks. Can. to Flor. ♀.—Berries amber-coloured ; ripen in November, and have a tart taste. Winter Grape.

4. *V. riparia* Mich. : leaves cordate, unequally and incisely toothed ; shortly 3-lobed, pubescent on the margin, nerves and petiole.—*V. odoratissima* Donn. Cat.

HAB. Gravelly shores of rivers. Penn. to Car. May—July. ♀.
—“Flowers of an exquisitely fine smell, resembling *Reseda odorata*.” Pursh.

ORDER XXVII. GERANIACEÆ. De Cand. Lind.

Sepals 5, persistent, more or less unequal, with an imbricated æstivation ; 1 sometimes saccate or spurred at the base.

Petals 5, (or by abortion 4, rarely none,) unguiculate. *Stamens* usually monadelphous, hypogynous, twice or thrice as many as the petals. *Ovary* composed of 5 pieces, placed round an elevated axis, each 1-celled, 1-seeded; *ovules* pendulous; *styles* 5, cohering round the axis. *Fruit* formed of 5 carpels cohering round the axis, having a membranous pericarp and terminated by an indurated style, which finally twists and carries the pericarp along with it. *Seeds* solitary, pendulous; *albumen* none. *Embryo* curved; *radicle* pointing to the base of the cell; *cotyledons* foliaceous, convolute and plaited.

Herbs or *shrubs*. *Stems* tumid and separate at the joints. *Leaves* either opposite or alternate.

1. GERANIUM. Linn.

Sepals 5, equal. *Petals* 5, equal. *Stamens* 10; alternate fertile ones larger, and with nectariferous scales at the base. *Carpels* with long awns, at length separating elastically from the summit to the base; *awns* smooth internally.

Monadelphia. Decandria.

* *Perennial. Peduncles 2-flowered.*

1. *G. maculatum* Linn.: stem somewhat angular, erect, dichotomous, retrorsely pubescent; leaves 3—5-parted, incised; radical ones on long petioles; upper ones opposite, sessile; petals entire; filaments scarcely ciliate at the base.

HAB. Can. to Car. W. to Miss. June. 2f.—*Stem* 8—15 inches high. *Leaves* hairy. *Flowers* large, purple. The root is very astringent and is useful for medicinal purposes.—*Big. Med. Bot.* i. 19. *Barton's Collections.*

Spotted Geranium. Crane's-bill.

** *Annual. Peduncles 2-flowered.*

2. *G. pusillum* Linn.: leaves subreniform, 7-lobed; lobes 3-cleft; peduncles short, 2-flowered; petals emarginate, scarcely longer than the awnless calyx; carpels keeled, pubescent; seeds smooth.—*G. malvafolium* Lam.

HAB. Penn. May. ☉. *Muhl.*—Is not Muhlenberg's *G. pusillum* the next species?

3. *G. dissectum* Linn.: leaves 5-parted; lobes opposite, petiolate 3-cleft, linear; peduncles short, 2-flowered; petals emarginate, rather shorter than the awned calyx; carpels hairy, not rugose; seeds reticulate.

HAB. Fields. N. S. July. ☉.—*Stem* 12 inches high, pubescent. *Flowers* small, pale red. *Wood Geranium.*

4. *G. columbinum* Linn. : leaves 5-parted ; lobes deeply cleft into linear, acute, segments ; peduncles very long, 2-flowered ; petals entire, as long as the awned calyx ; carpels glabrous, not rugose ; seeds dotted.

HAB. Fields. Can. and N. S. July. ☉.—Stem mostly decumbent, rough. Flowers pale purple.

5. *G. carolinianum* Linn. : diffuse, pubescent ; leaves 5-lobed beyond the middle ; lobes incised, 3—5-cleft ; peduncles crowded towards the top ; petals notched, as long as the awned calyx ; carpels hairy ; seeds smooth.

HAB. Hills. From Arctic Amer. to Geor. W. to Miss. May, June. ☉.—Stem 12—18 inches long, branched. Flowers small, white.

6. *G. robertianum* Linn. : leaves ternate or quinate ; leaflets somewhat pinnatifid ; segments mucronate ; peduncles long, 2-flowered ; calyx angular, hairy, with longish awns, shorter than the entire petals ; carpels small, wrinkled ; seeds smooth.

HAB. Rocky places. Can. to Virg. June—Sept. ☉.—Stem long. Flowers rather small, purple.—Plant very fetid.

Herb Robert.

ORDER XXVIII. BALSAMINEÆ. De Cand. Lind.

Sepals 5, irregular, deciduous, the two inner and upper of which are connate, the lower spurred. *Petals* 4, hypogynous, united in pairs, so that apparently there are only 2 petals ; the fifth wanting. *Stamens* 5, hypogynous ; *filaments* subulate ; *anthers* 2-celled, bursting lengthwise. *Ovary* single, 5-celled ; *stigma* sessile, more or less 5-lobed. *Fruit* capsular, with 5 elastic valves and 5 cells. *Seeds* numerous, suspended ; *albumen* none ; *embryo* straight, with a superior *radicle* and plano-convex *cotyledons*.

Succulent herbs. *Leaves* simple, opposite or alternate, without stipules. *Peduncles* axillary.

1. IMPATIENS. Linn.

Sepals 5, the lower one spurred. *Corol* 4 petalled, irregular ; the two inner petals unequally bilobed. *Stigmas* 5, united. *Capsule* prismatic-terete, elongated, 5-valved, opening elastically. *Pentandria. Monogynia.*

1. *I. pallida* Nutt. : peduncles solitary, 3—4-flowered ; leaves rhombic-ovate, sub-acute, mucronate-dentate ; calcarate petal dilated, shorter than the rest ; spur recurved, very short ; flowers sparingly punctate.—*I. noli-tangere* Pursh.—*I. aurea* Muhl.

HAB. Damp grounds. Can. to Car. W. to Miss. Aug. ☉.—
Stem 2 feet high, much branched. Flowers pale yellow, larger
than the next. Snap-weed. Touch-me-not.

2. *I. fulva* Nutt. : peduncles solitary, 2—4-flowered ; leaves rhombic-ovate, obtuse, mucronate-dentate ; calcarate petal longer than the rest ; spur emarginate, resupinate ; flowers with crowded spots.—
I. biflora Pursh.—*I. noli-tangere*, var. Mich.—*I. maculata* Muhl.

HAB. Wet grounds. Can. to Car. Aug. ☉.—Flowers deep yellow, spotted, smaller and less numerous than in the former.

ORDER XXIX. OXALIDÆ. De Cand. Lind.

Sepals 5, sometimes slightly cohering at the base, persistent, equal. *Petals* 5, hypogynous, equal, unguiculate, with a spirally twisted æstivation. *Stamens* 10, usually more or less monadelphous, those opposite the petals forming an inner series and longer than the others ; *anthers* 2-celled, innate. *Ovary* 5-angled, 5-celled ; *styles* 5, filiform ; *stigmas* capitate or somewhat bifid. *Fruit* capsular, membranous, with 5 cells, and from 5 to 10 valves. *Seeds* few, enclosed within a fleshy integument, which bursts elastically. *Albumen* between cartilaginous and fleshy ; *embryo* straight, as long as the albumen, with a long *radicle* pointing to the hilum, and foliaceous *cotyledons*.

Herbs, undershrubs or trees. Leaves alternate, mostly compound.

1. OXALIS. Linn.

Sepals 5, free or united at base. *Petals* 5. *Stamens* 10 ; *filaments* monadelphous at base, 5 outer ones shorter. *Styles* 5. *Capsule* pentangular, oblong or cylindric.

Decandria. Pentagynia.

* *Stemless.*

1. *O. acetosella* Linn. : stemless ; root dentate, creeping ; scape 1-flowered, longer than the leaves, with two small bracts above the middle ; leaves ternate, dilated-obcordate, pilose ; petals oval, obtuse ; styles as long as the inner stamens.

HAB. Mountain woods. Can. N. Y. and Penn. June. 24.—
Scape 3—4 inches long. Flowers large, white, with red veins.
Petals slightly emarginate.—This is the Shamrock of the Irish.

Common Wood Sorrel.

2. *O. violacea* Linn. : stemless ; root squamous ; scape unbelliferous, 3—9-flowered ; flowers nodding ; leaves ternate, obcordate, smooth ; styles shorter than the outer stamens.

HAB. Rocky woods. N. Y. to Car. W. to Miss. May, June.
 2f.—Scape 4—6 inches high. Flowers violet, umbelled, with
 the petals obovate and sometimes slightly emarginate.

Violet Wood Sorrel.

** *Caulescent.*

3. *O. corniculata* Linn.: pubescent; stem rooting, decumbent, branched; umbels shorter than the petioles; leaves ternate, obcordate; petals obovate, emarginate; styles as long as the inner stamens.—*O. corniculata*, var. *Mich.*

HAB. Woods. Can. to Car. May—Aug. 2f.—Stem 6—10 inches long. Flowers small, yellow. It is distinguished chiefly by its habit.

4. *O. stricta* Linn.: hairy; stem erect, sometimes procumbent, branched; umbels about as long as the leaves; leaves ternate, obcordate; petals obovate, entire; styles as long as the inner stamens.

HAB. Sandy fields. Can. to Car. W. to Miss. May—Aug. 2f.—Stem 4—10 inches high. Flowers small, yellow, 4—6 in an umbel.

Upright Wood Sorrel.

ORDER XXX. ZANTHOXYLÆ. Lind.

Flowers diclinous, regular. Calyx 3—4—5-divided, with an imbricate æstivation. Petals equal in number (rarely none) to the sepals; æstivation usually twisted-convolute. Stamens as many or twice as many as the petals. Ovaries as many (or fewer) as petals, either altogether combined, or more or less distinct; ovals 2 in each cell, or rarely 4; styles more or less combined. Fruit either baccate or membranous, of 2—5 cells, or of several drupes or 2-valved capsules, of which the sarcocarp is fleshy and partly separable from the endocarp. Seeds solitary or in pairs; embryo lying within fleshy albumen; radicle superior; cotyledons ovate, flat.

Trees or shrubs. Leaves without stipules, alternate or opposite, with pellucid dots.

1. ZANTHOXYLUM. Linn.

Dioecious. Calyx 3—9-lobed, often 4—5-parted. Petals as many as the lobes of the calyx, rarely none. Stamens and carpels as many as the lobes of the calyx, 1—3-seeded.

Dioecia. Pentandria.

Z. fraxineum Willd.: prickly; leaves pinnate; leaflets in 4—5 pairs, ovate, obsoletely serrate, equal at base; petioles terete, unarmed; prickles stipular; umbels axillary.—*Z. ramiflorum* Mich.—*Z. clava-herculis* Linn. Ell.

HAB. Rocky woods. Can. to Car. W. to Ken. April. ♀.—
Shrub 3—5 feet high, covered with sharp strong prickles. *Leaves*
 pinnate, sometimes prickly on the back. *Flowers* in umbels,
 small, greenish.—The bark of this shrub is pungent, and is em-
 ployed medicinally.—*Big. Med. Bot.* iii. 156. *Prickly Ash.*

2. PTELEA. Linn.

Calyx small, 4—5-parted. *Petals* 4—5, spreading. *Sta-*
mens alternating with the petals. *Torus* tumid, pentagonal.
Ovary 1. *Style* short. *Stigmas* 2. *Samaræ* membrana-
 ceous, margined, 2-celled; cells 2—or by abortion 1-seeded.

Tetandria. Monogynia.

Pt. trifoliata Linn.: leaves on long petioles, ternate; leaflets sessile,
 ovate, acuminate, odd one much attenuated at base; flowers in pani-
 cles, polygamous, often tetandrous.

HAB. Moist woods. Can. to Geor. W. to Miss. June. ♀.
 —*Shrub* 6—10 feet high. *Flowers* greenish-white, small, in co-
 rymbose clusters. *Shrubby Trefoil.*

SUBCLASS II. CALYCIFLORÆ. De Cand.

Calyx with the sepals more or less united at base, (gamo-
 sepalous, *De Cand.*—monophyllous, *Linn.*) *Petals* and *sta-*
mens inserted into the calyx.

ORDER XXXI. CELASTRINEÆ. De Cand. Lind.

Sepals 4 or 5, imbricated, inserted into the margin of a
 large expanded torus. *Petals* 4—5, with a broad base; æsti-
 vation imbricated. *Stamens* alternate with the petals, insert-
 ed into the disk, either at the margin or within it; *anthers* in-
 nate. *Ovary* superior, free, surrounded by the somewhat
 fleshy disk, with 2, 3 or 4 cells; cells 1, or many-seeded;
style 1 or none; *stigma* 2—4-cleft. *Fruit* superior; either a
 3 or 4-celled capsule, with 3 or 4 septiferous valves; or a dry
 drupe with a 1 or 2-celled nut, the cells of which are one or
 many-seeded. *Seeds* ascending; *albumen* fleshy; *embryo*
 straight; *cotyledons* flat and thick.

Shrubs with simple alternate or opposite leaves. *Flowers*
 in axillary cymes.

1. EVONYMUS. Linn.

Calyx 4—6-lobed, flat, covered at base by a peltate disk.
Petals 4—6, spreading, inserted into the disk. *Stamens* 4—6,

alternating with the petals. *Style* 1. *Capsule* 3—5-celled, 3—5-angled; cells 1—4-seeded. *Pentandria. Monogynia.*

1. *E. americanus* Linn. : branches opposite, smooth, square; leaves opposite, subsessile, elliptic-lanceolate, smooth, acute, serrate; peduncles mostly 3-flowered, terete; calyx small, with acute segments; corol 5-petalled; fruit roughened, warty.

HAB. Shady woods. N. Y. to Car. June. $\frac{1}{2}$.—Shrub 4—6 feet high, with opposite branches. *Flowers* reddish-yellow. *Fruit* scarlet. *Burning Bush. Spindle Tree.*

2. *E. atropurpureus* Jacq. : stem with smooth, opposite, square branches; leaves petiolate, oblong-lanceolate, acuminate, serrate, pubescent beneath; peduncles divaricate, many-flowered; flowers 4-cleft; fruit smooth.

HAB. Shady woods. N. Y. to Car. W. to Miss. June. $\frac{1}{2}$.—Shrub 4—8 feet high. *Flowers* dark-purple. *Fruit* bright red.

3. *E. obovatus* Nutt. : stem prostrate, rooting, nearly simple; surculi erect, obtusely quadrangular, with 4 elevated lines; leaves broad-ovate, obtuse, acute at base, subsessile, acutely serrulate; peduncles 3-flowered; petals 4 and 5, roundish.

HAB. Fir swamps. Penn. June. $\frac{1}{2}$.—Shrub a foot high. *Flowers* green, with a purple tinge.

2. CELASTRUS. Linn.

Calyx minute, 5-lobed. *Petals* 5, unguiculate. *Stamens* 5. *Ovary* small, with 10 striæ, immersed in the disk. *Style* 1. *Stigmas* 2—3. *Capsule* 2—3-valved; *valves* septiferous in the centre. *Seed* 1, covered with a large fleshy aril.

Pentandria. Monogynia.

C. scandens Linn. : stem climbing, unarmed; leaves petioled, oval, acuminate, serrate; stipules minute; racemes terminal.

HAB. Rocky woods. Can. to Virg. May, June. $\frac{1}{2}$.—A woody vine or low shrub. *Leaves* alternate. *Flowers* greenish-yellow, in small terminal racemes. *Fruit* scarlet. *Climbing Staff Tree.*

ORDER XXXII. STAPHYLEACEÆ. Lind.

Sepals 5, connected at base, coloured, with an imbricated æstivation. *Petals* 5, alternate, with an imbricated æstivation. *Stamens* 5, alternate with the petals, perigynous. *Disk* large, urceolate. *Ovary* 2—3-celled, superior; *ovules* erect; *styles* 2—3, cohering at the base. *Fruit* membranous or fleshy, indehiscent or opening internally, partly abortive. *Seeds* ascending, roundish, with a long testa; *hilum* large truncate; *albumen* none; *cotyledons* thick.

Shrubs, with opposite, pinnate leaves. *Flowers* in terminal racemes.

1. STAPHYLEA. Linn.

Calyx 5-parted, covered at base by an urceolate disk ; lobes oblong, concave, coloured. *Petals* 5, alternating with the sepals. *Stamens* 5, alternating with the petals. *Ovary* 2—3-lobed. *Styles* 2—3, sometimes united. *Capsule* 2—3-celled ; *cells* membranaceous, inflated, united at base or throughout their whole length. *Pentandria. Trigynia.*

S. trifolia Linn. : leaves ternate, on long petioles ; leaflets ovate, acuminate, serrulate, pubescent, the terminal one petioled ; styles glabrous ; capsule bladder-like.

HAB. N. Y. to Car. W. to Miss. April—June. *h.*—A shrub 6—10 feet high. *Flowers* white, in axillary and terminal pendulous panicles. *Bladder-nut.*

ORDER XXXIII. RHAMNEÆ. De Cand. Lind.

Calyx 4—5-cleft, with a valvate æstivation. *Petals* distinct, cucullate or convolute, inserted into the orifice of the calyx, occasionally wanting. *Stamens* definite, opposite the petals. *Disk* fleshy. *Ovary* superior or half superior, 2—3—4-celled ; *ovules* solitary, erect. *Fruit* fleshy and indehiscent, or dry and separating in 3 parts. *Seeds* erect ; *albumen* fleshy, seldom wanting ; *embryo* almost as long as the seed, with large flat *cotyledons*, and a short inferior *radicle*.

Trees or *shrubs*, often spiny. *Leaves* simple, alternate, rarely opposite, with minute stipules. *Flowers* axillary or terminal.

1. RHAMNUS. Linn.

Calyx 4—5-cleft, urceolate, persistent with and adhering to the fruit at base. *Petals* alternating with the lobes of the calyx, or none. *Stamens* 4—5, inserted above the petals. *Style* 2—4-cleft. *Berry* 2—4-celled ; *cells* 1, rarely 2-seeded. *Pentandria. Monogynia.*

1. *R. alnifolius* L'Herit : unarmed ; leaves alternate, oval, acuminate, serrulate, pubescent on the nerves beneath ; flowers diœcious ; peduncles 1-flowered, aggregate ; calyx acute ; fruit turbinate.—*R. franguloides* Mich.

HAB. Rocky hills. Can. to Vir. rare. May, June. *h.*—*Flowers* small, greenish, in axillary fascicles. *Berries* black.—

R. alnifolius of Pursh is described by De Candolle as a distinct species, under the name of *R. purshianus*.

2. *R. catharticus* Linn. : branches spiny ; leaves opposite, ovate, crosely denticulate ; flowers mostly 4-cleft, polygamo-dioecious ; berries 4-seeded, subglobose.

HAB. Woods on mountains. N. S. Small tree or large shrub, with yellowish-green flowers. Introduced. ? *Buck-thorn*.

2. CEANOTHUS. Linn.

Calyx 5-cleft, campanulate, persistent and somewhat adhering with the fruit. *Petals* 5, small, saccate and arched, with long claws. *Stamens* exsert. *Styles* 2—3, united to the middle. *Berry* dry, (a capsule ?) 3-celled, 3-seeded, 3-parted, opening on the inner side. *Pentandria. Monogynia*.

1. *C. americanus* Linn. : stem shrubby ; branches terete and somewhat pubescent ; leaves ovate-oblong, alternate, serrate, 3-nerved, tomentose, pubescent beneath, sometimes subcordate ; panicles axillary, on long peduncles.

HAB. Woods. Can. to Flor. W. to Miss. July. 5.—*Stem* 2—3 feet high. *Leaves* on petioles. *Flowers* small, white, in a racemed panicle. *Root* very large, dark red.

New-Jersey Tea. Red-root.

2. *C. herbaceus* Raf. : leaves oval, slightly serrulate, smooth ; panicles thyrsoid, axillary and terminal.—*P. perennis* Pursh.

HAB. Rocky places. Penn. to Car. Suffruticose. *Leaves* nearly as large as in the former, but smooth.

3. *C. ovalis* Big. : leaves oval, glandular-serrate, 3-nerved, the veins pubescent underneath ; panicle corymbose, abbreviated.

HAB. Shores of Lake Champlain. Dr. Boott.—*Leaves* 1—3 inches long, petioled, elliptical, obtuse or subacute. *Peduncles* shorter than in *C. americana* and the flowers larger. *Fruit* blackish.

ORDER XXXIV. ANACARDIACEÆ. Lind.

Flowers usually diclinious. *Calyx* usually small, persistent, 5-(sometimes 3—4—7) divided. *Petals* equal in number to the segments of the calyx, (sometimes wanting) perigynous, imbricated in æstivation. *Stamens* equal in number to the petals, and alternate, or twice as many or more ; filaments distinct or cohering at the base. *Disk* fleshy, annular or cup-shaped, hypogynous, occasionally wanting. *Ovary* single (or rarely 5—6) free or rarely adhering to the calyx, 1-celled ; *styles* 1—3, sometimes 4 ; *stigmas* as many. *Fruit*

indehiscent, usually drupaceous. *Seed* without albumen; *radicle* superior or inferior, next the hilum; *cotyledons* thick and fleshy or leafy.

Trees or *shrubs*, with a resinous, gummy, caustic, or even milky juice. *Leaves* alternate, not dotted.

1. RHUS. Linn.

Calyx small, 5-parted, persistent. *Petals* 5, ovate, spreading. *Stamens* 5. *Styles* 3, short, or 3 sessile stigmas. *Drupe* nearly dry, with one bony seed.

Pentandria. Trigynia.

* *Leaves ternate.*

1. *R. toxicodendron* Linn.: stem erect, pubescent near the summit; leaves ternate; leaflets broad, oval, entire, sinuate or lobed, subpubescent beneath; flowers dioecious, in sessile axillary racemes.—*R. toxicodendron*, var. *quercifolium* Mich.

HAB. Moist woods. Can. to Car. W. to Rocky mountains. June. ♀.—*Shrub* 2—5 feet high. *Flowers* greenish.

2. *R. radicans* Linn.: stem climbing; leaves ternate; leaflets petiolate, ovate, acuminate, smooth, generally entire; flowers in axillary racemes, towards the top of the stem, dioecious; fruit smooth.—*R. toxicodendron*, var. *vulgare* Mich. Pursh.—*R. toxicodendron*, var. *radicans* Torr.

HAB. Woods and hedges. Can. to Car. June. ♀.—*Stem* climbing. *Flowers* greenish.—De Candolle thinks *R. radicans* distinct from *R. toxicodendron*. Both are very poisonous to persons of peculiar constitutions.—*Barton's Collections. Big. Med. Bot.* iii. 19. *Christy in N. Y. Med. & Phys. Jour. N. S.* i. 21. *Poison Ivy.*

3. *R. aromatica* Ait.: branches slender, nearly smooth; leaves ternate; leaflets sessile, ovate-rhomboid, deeply toothed, tomentose beneath; flowers in dense axillary racemes or catkins, dioecious; fruit pilose.—*Lobadium aromaticum* Raf.

HAB. Mountains. N. Y. to Geor. W. to Miss. May, June. ♀.—*Shrub* 2—6 feet high. *Flowers* yellowish. *Fruit* red.

** *Leaves pinnate, smooth.*

4. *R. glabra* Linn.: stem and branches smooth; leaflets in many pairs, sessile, lanceolate, acuminate, sharply serrate, smooth, whitish beneath; flowers all perfect, in terminal compound panicles.

HAB. Old fields. Can. to Geor. July. ♀.—*Shrub* 6—12 feet high. *Flowers* greenish-yellow. *Fruit* crimson, downy.

5. *R. copallina* Linn.: branches terete, downy; leaflets 4—7 pairs, with an odd one, oval-lanceolate, very entire, shining on the upper

surface ; petiole winged, appearing as if jointed ; flowers in sessile panicles, dioecious.

HAB. Dry fields. N. Y. to Car. July. ♀.—A small shrub, with yellowish-green flowers. Fruit red, small, compressed, hairy.
Mountain Sumach.

6. *R. venenata* De Cand. : branches, leaves and petioles very smooth ; leaflets in 5—6 pairs, oblong-oval, abruptly acuminate, nearly entire ; petioles without joints or wings ; flowers in loose slender panicles, dioecious ; fruit smooth, white.—*R. vernix* Linn.

HAB. Margins of swamps. N. Y. to Geor. June, July. ♀.—
Shrub 6—12 feet high. Flowers greenish. Poisonous. Big.
Med. Bot. i. 96. Poison Ash.

*** Leaves pinnate, pubescent.

7. *R. typhina* Linn. : branches and petioles very villous ; leaflets in many pairs, lanceolate-oblong, acuminate, acutely serrate, pubescent beneath ; flowers in oblong dense panicles, dioecious.

HAB. Rocky hills. Can. to Car. June. ♀.—Shrub 10—15 feet high. Flowers greenish-yellow. Fruit in clusters, covered with a purple velvety down.
Stag's Horn.

ORDER XXXV. LEGUMINOSÆ. De Cand. Lind.

Calyx 5-parted, toothed or cleft, inferior, with the odd segment anterior ; the segments often unequal and variously combined. *Petals* 5, or by abortion 4, 3, 2, 1, or none, inserted into the base of the calyx, either papilionaceous or regularly spreading ; the odd petal posterior. *Stamens* definite or indefinite, perigynous, either distinct or monadelphous, or diadelphous ; very seldom triadelphous ; *anthers* versatile. *Ovary* simple, superior, 1-celled, 1 or many-seeded ; *style* simple, proceeding from the upper margin ; *stigma* simple. *Fruit* either a legume or a drupe. *Seeds* attached to the upper suture, solitary or several, occasionally with an arillus ; *embryo* destitute of *albumen*, either straight, or with a radicle bent upon the cotyledons ; *cotyledons* either remaining under ground in germination, or elevated above the ground and becoming green like the leaves.

Herbs, shrubs or trees. Leaves with usually 2 stipules at the base.

SUBORDER I. PAPILIONACEÆ.

Calyx with distinct lobes. *Stamens* periginous. *Corol* papilionaceous.

1. BAPTISIA. Vent.

Calyx half 4—5-cleft, bilabiate. *Petals* 5, nearly equal, *Standard* with the sides reflexed. *Stamens* deciduous. *Legume* ventricose, pedicelled, many-seeded.

Decandria. Monogynia.

B. tinctoria Brown; very smooth, much branched; leaves ternate, petioled, upper ones subsessile; leaflets round-obovate; stipules setaceous; racemes terminal; legume on a long stipe.—*Sophora tinctoria* Linn.—*Podalyria tinctoria* Willd.

HAB. Sandy woods. Can. to Car. July, Aug. 21.—*Stem* 2—3 feet high, very bushy, *Flowers* yellow. Whole plant turns bluish-black in drying. *Wild Indigo.*

2. CROTALARIA. Linn.

Calyx 5-lobed, subbilabiate; upper lip 2, lower one 3-cleft. *Standard* large, cordate. *Keel* falcate, acuminate. *Filaments* all united, with the sheath often divided above. *Legume* turgid, inflated, with ventricose valves, often many-seeded, pedicelled.

Diadelphia. Decandria.

1. *C. sagittalis* Linn.: hairy, erect, branched; leaves simple, oblong-lanceolate; stipules lanceolate, acuminate, decurrent; racemes opposite the leaves, about 3-flowered; corol smaller than the calyx.—*C. sagittalis*, var. *oblonga* Mich.

HAB. Pine barrens. Penn. to Car. July, Aug. ☉.—*Stem* 12 inches high. *Flowers* yellow. *Legume* inflated. Varies much in its pubescence. *Rattle-box.*

2. *C. parviflora* Willd.: hirsute, erect, branched; leaves simple, linear-lanceolate, hirsute; upper stipules decurrent, with two very short teeth; racemes opposite the leaves; corol smaller than the calyx.—*C. sagittalis*, var. *linearis* Mich.

HAB. Sandy fields. N. Y. to Car. June, July. ☉.—*Leaves* 2—3 inches long. *Flowers* yellow.

3. GENISTA. Lam.

Calyx bilabiate, upper lip bipartite; lower one 3-toothed, or 5-lobed; 3 lower lobes united almost to the summit. *Standard* oblong-oval. *Keel* oblong, straight. *Stamens* monadelphous. *Legume* flat-compressed or rarely somewhat turgid, many-seeded, rarely few-seeded.

Diadelphia. Decandria.

G. tinctoria Linn.: root creeping; stem suberect, suffruticose; branches terete, striate, erect; leaves lanceolate, smooth; flowers in spiked-racemes and with the legumes smooth.

HAB. Hills, near Boston. Big. July. ♀.—Suffrutescent. Stem a foot high, with numerous branches. Flowers on the upper part of the branches, nearly sessile, yellow. Said to afford a fine yellow dye. Introduced. *Dyer's Weed.*

4. MEDICAGO. Linn.

Calyx subcylindric, 5 cleft. *Keel* somewhat remote from the standard. *Stamens* diadelphous. *Legume* many-seeded, varying in form, always falcate or twisted into a spiral. —Leaves ternate. *Diadelphia. Decandria.*

1. *M. lupulina* Linn.: stem procumbent; leaflets obovate-cuneate, denticulate at the apex; stipule lanceolate, acute, somewhat entire; peduncles in racemed-spikes; flowers sessile; legumes reniform, 1-seeded, veined and rugose; seeds ovate, somewhat reniform.

HAB. Fields. Throughout the U. S. June—Aug. ☉.—Spikes small, yellow. Introduced. *None-such.*

2. *M. intertexta* Willd.: stem procumbent; leaflets obovate, toothed; stipules ciliate-toothed; peduncles somewhat 2-flowered; legume pilose, cochleate, membranaceous, obliquely reticulate; spines straight, thick, rigid and acute.

HAB. Sandy fields. Conn. and Car. July, Aug. ☉.—Flowers yellow. Introduced.

5. MELILOTUS. Tourn.

Calyx tubular, 5-toothed. *Keel* simple; wings shorter than the standard. *Legume* as long as the calyx, coriaceous, one or few-seeded, scarcely dehiscent, varying in form. —Leaves ternate. *Diadelphia. Decandria.*

1. *M. officinalis* Willd.: stem erect, branching; leaflets lanceolate-oblong, obtuse, remotely serrate; spikes axillary, paniculate; legume 2-seeded, rugose; style filiform, as long as the legume; seeds unequally cordate.—*Trifolium officinale*, var. *a.* Linn.

HAB. Fields. N. S. Aug. ☉.—Stem 2—4 feet high. Flowers in long racemes, yellow. Plant giving out an odour when dry, similar to the vernal grass. Introduced. *Yellow Melilot.*

2. *M. leucantha* De Cand.: stem erect, branched; leaflets ovate-oblong, truncate and mucronate at the apex, remotely serrate; stipules setaceous; teeth of the calyx unequal, as long as the tube; standard longer than the keel and wings; legume 1-seeded, ovate, lacunose-rugose, green; seeds exactly ovate.—*M. vulgaris* Willd. Enum. *Trifolium officinale*, var. *b.* Linn.

HAB. Fields. N. S. July, Aug. ♂.—Stem 3—5 feet high. Flowers white. Raceme longer and less crowded than in the former. Both species become fragrant upon drying. Introduced. ? *White Melilot. Scented Clover.*

6. TRIFOLIUM. *Tourn.*

Calyx tubular, persistent, without glands, 5-cleft; segments subulate. *Keel* shorter than the *wings* and *standard*. *Stamens* diadelphous. *Legume* small, scarcely dehiscent, often ovate, 1—2-seeded, as long as the calyx and covered by it, rarely oblong, 3—4-seeded, and a little exceeding the calyx.—Leaves ternate. *Diadelpia. Decandria.*

* *Legume* 1-seeded. *Standard of the corol deciduous. Flowers not yellow.*

1. *T. arvense* Linn.: stem erect, simple or branched, pubescent; leaves on short petioles; leaflets linear-obovate, hairy, somewhat 3-toothed at the apex; stipules narrow, membranaceous, with very long nerves, subulate, pilose; spikes oblong, villous, cylindrical; calyx very pilose; segments equal, longer than the many petalled corol.

HAB. Dry pastures. Can. to Car. June—Sept. ☉.—Stem 6—10 inches high. *Flowers* minute, white or pink. *Seeds* ovoid, brown. *Stone Clover. Hare's-foot Trefoil.*

2. *T. pratense* Linn.: stem suberect, branched; leaves on long petioles; leaflets oval, nearly entire; stipules broad, nerved, smooth, shortly acuminate, inflexed; heads of flowers ovate, obtuse, subsessile; calyx hairy; lower tooth shorter than the tube of the monopetalous unequal corol; seeds reniform, compressed.

HAB. Meadows. May—Oct. 2f.—Stem 1—2 feet high. *Flowers* rose-coloured. *Seeds* yellowish. Introduced. *Red Clover.*

3. *T. pennsylvanicum* Willd.: stem ascending, much branched, flexuous; leaflets ovate-elliptic, obtuse, very entire; stipules awned; heads of flowers ovate-cylindrical, solitary, dense; lower tooth of the calyx shorter than the monopetalous corol.

HAB. Woods. Penn. to Virg. June—Sept. 2f.—*Flowers* fine red. Resembles *T. medium* of Linnæus.

** *Legume* 1-seeded. *Standard of the corol persistent, scarious. Flowers yellow.*

4. *T. procumbens* Linn.: stems procumbent; leaves on short petioles; leaflets obovate or obcordate, denticulate, terminal one petioled; stipules ovate, ciliate, shorter than the petiole; heads axillary, ovate; peduncles equal to or longer than the leaves; segments of the calyx unequal, the 2 upper ones very short; seeds elliptic.

HAB. Dry fields. Mass. to Virg. June. ☉.—Stem spreading, 3—6 inches long. *Flowers* numerous and with the *seeds* yellow. Introduced. ? According to De Candolle *T. campestre* is a mere var. with erect branching stems. *Yellow Clover.*

5. *T. agrarium* Linn.: stem ascending, with erect branches; leaves nearly sessile; leaflets oblong-ovate, sessile, denticulate; stipules leafy, lanceolate, acute, longer than the petiole; heads on long pe-

duncles, oval; standard obcordate; calyx campanulate, short; segments unequal, smooth, elongated, the upper one smaller; legume oval, compressed; seeds cordate.

HAB. Meadows and woods. Penn. to Virg. June—Aug. ☉.
—Stem a foot high. Flowers small, light yellow.

*** *Legume 3—8-seeded.*

6. *T. repens* Linn.: stem creeping and somewhat rooting, leaflets obovate-roundish, somewhat retuse, denticulate; stipules scarious, narrow-lanceolate, with a long mucronate point; heads axillary, on very long peduncles; flowers pedicelled and at length reflexed; segments of the calyx unequal, shorter than the corol; legume 4-seeded.

HAB. Meadows. Throughout the U. S. May—Oct. 24.—
Stem 6—12 inches long. Flowers white. Seeds brown.

White Clover.

7. *T. reflexum* Linn.: pilose; stem ascending; leaflets ovate or obovate, serrulate; stipules leafy, lanceolate-acuminate; heads globose, axillary; flowers on long pedicels, at length reflexed; segments of the calyx hairy, nearly equal, very narrow, one-nerved, nearly twice as long as the tube but shorter than the standard; legume 4-seeded.

HAB. Dry hills. Penn. to Geor. June, July. 24.—Whole plant very pubescent. Flowers in large heads, red. In my specimens the stipules are obliquely cordate, as stated by Mr. Elliott. Known at the south by the name of *Buffalo Clover*.

8. *T. stoloniferum* Muhl.: stoloniferous, smooth; lower leaves on long petioles; leaflets obovate or wedge-form, serrulate, retuse or emarginate at the apex; stipules membranaceous, broad-lanceolate; flowers in globose heads, pedicelled, erect, at length reflexed; segments of the calyx nearly equal, narrow, smooth, longer than the tube.

HAB. N. Y. Penn. W. to the Miss. June. 24.—Stem 4—8 inches long. Flowers in middle sized heads.—I suspect this is not specifically distinct from the preceding. The specimens collected by myself on the Mississippi, as well as that received by my brother from Dr. Muhlenberg, agree very well with that plant, except in the absence of pubescence, and in the smaller size of the heads of flowers.

Running Buffalo Clover.

7. CLITORIA. Linn.

Calyx surrounded at base by 2 larger bracts, 5-cleft. *Corol* resupinate. *Standard* large, covering the wings. *Stamens* diadelphous. *Style* somewhat dilated at the apex. *Legume* linear, compressed, straight, 2-valved, 1-celled, many-seeded.

Diadelphia. Decandria.

1. *C. mariana* Linn.: stem climbing, glabrous; leaves ternate; leaflets ovate-lanceolate; peduncles solitary, 1—3-flowered; calyx tubu-

lar-campanulate, glabrous, much longer than the lanceolate bracts; teeth nearly equal; legume torulose.

HAB. Banks of streams. Penn. to Car. July, Aug. 2f.—
Stem climbing, sometimes erect. Flowers large, pale blue.

2. *C. virginiana* Linn.: stem twining, and with the ovate leaflets glabrous or subpubescent; peduncle 1—4-flowered; calyx 5-parted, about as long as the lanceolate bracts; legume linear, compressed.

HAB. Hedges. Penn. to Car. Aug. 2f.—Flowers purple or violet, larger than that of any of our North American Papilionaceæ. De Candolle describes three varieties of this species, which differ only in the shape of the leaves. *Butterfly Weed*.

8. GALACTIA. Mich.

Calyx bibractiate, 4-cleft; segments acute, nearly equal. *Corol* papilionaceous; petals 5, oblong, distinct. *Standard* incumbent, broader than the others. *Stamens* diadelphous. *Style* smooth. *Stigma* obtuse. *Legume* terete or compressed, many-seeded, bivalved, 1-celled, elongated.

Diadelphia. Decandria.

1. *G. mollis* Mich.: stem twining, softly-villous; leaves ternate; leaflets ovate-oblong, obtuse, pale beneath; racemes axillary, a little longer than the leaves, pedunculate; flowers pedicelled; calyx acuminate, villous; legume compressed, villous.—*Hedysarum volubile* Linn.

HAB. Pine barrens. N. J. to Car. July, Aug. 2f.—Stem prostrate or climbing. Flowers small, purple.

2. *G. glabella* Mich.: stem prostrate, somewhat twining, smooth; leaves ternate; leaflets elliptic-oblong, obtuse, emarginate at each end, shining above; racemes axillary, simple, few-flowered, on peduncles as long as the leaves; calyx smooth; legumes pubescent, (smooth, Nutt.)—*Errum volubile* Walt.

HAB. Pine barrens. N. J. to Car. Aug. 2f.—Flowers reddish-purple, large. Root fusiform.

9. TEPHROSIA. Pers.

Calyx without bracts, nearly equal, 5-toothed. *Standard* of the corol large, roundish, pubescent or sericeous without, reflexed-spreading; wings adhering to the obtuse keel. *Stamens* none or diadelphous. *Legume* compressed-flat, linear, many-seeded. *Seeds* compressed. *Diadelphia. Decandria.*

T. virginiana Pers.: erect; leaflets 8—12 pairs, oval-oblong, mucronate, white villous beneath; raceme terminal, subsessile; legumes falcate villous.—*Galega virginiana* Linn.

HAB. Barrens. Can. and throughout the U. S. July. 2f.—
Stem a foot high. Flowers varied with red, yellow and white.

Goat's Rue.

10. AMORPHA. *Linn.*

Calyx 5-toothed, obconic-campanulate. *Standard* of the corol ovate, concave; *wings* and *keel* none. *Style* filiform, straight, glabrous. *Stamens* exserted, monadelphous at base. *Legume* compressed, ovate or lunulate, 1-celled, 1—2-seeded.

Diadelphia. Decandria.

A. fruticosa *Linn.*: subarborescent, smooth; leaves pinnate, petiolate; leaflets elliptic-oblong; spikes aggregated, long; calyx hoary, 4 teeth, obtuse, the other one acuminate; legume few-seeded.

HAB. N. J. to Car. W. to Rocky mountains. July. ½.—A shrub, with spikes of purple flowers. Varies with emarginate, mucronate and narrower leaves. *Wild Indigo.*

11. ROBINIA. *De Cand.*

Teeth of the *calyx* 5, lanceolate, two upper ones approximate. *Corol* papilionaceous. *Standard* large. *Keel* obtuse. *Stamens* diadelphous, deciduous. *Legume* compressed, subsessile, many-seeded; valves flat, thin.

Diadelphia. Decandria.

R. pseudacacia *Linn.*: leaves pinnate, with an odd leaflet; stipules prickly; racemes pendulous, and with the legume smooth; teeth of the calyx unarmed.

HAB. Near cultivated grounds, but apparently native. N. Y. to Car. W. to Miss. May.—A large tree, the wood of which is much esteemed in ship building. *Flowers* white, odorous, in long racemes. *Locust Tree.*

12. ASTRAGALUS. *Linn.*

Calyx 5-toothed. *Corol* with the *keel* obtuse. *Stamens* diadelphous. *Legume* 2, or half 2-celled; lower suture inflexed.

Diadelphia. Decandria.

1. *A. canadensis* *Linn.*: erectish, subpubescent; leaflets 10—12 pairs with an odd one, elliptic-oblong, rather obtuse, smooth on both sides; stipules lanceolate, acuminate; peduncles about as long as the leaves; flowers spiked; bracts shorter than the calyx; legume erect, ovate, terete, smooth.

HAB. Banks of streams. Can. to Car. W. to Miss. June. 2f. —*Stem* 2 feet high. *Flowers* pale yellow. *Milk Vetch.*

2. *A. carolinianus* *Linn.*: erect, smooth; leaflets 20 pairs, with an odd one, oblong, pubescent beneath; stipules ovate, acuminate; peduncles longer than the leaves; flowers spiked; bracts as long as the pedicels; legume erect, ovate, tumid, rostrate.

HAB. Mountains. Penn. to Car. June, July. 2f.—*Spikes* dense. *Flowers* yellow. Perhaps only a variety of the former.

13. STYLOSANTHES. Swartz.

Tube of the *calyx* very long, slender; limb 5-parted, lobes unequal. *Corol* inserted into the calyx. *Keel* minute, bifid at the apex. *Stamens* monadelphous. *Style* filiform, very long, straight. *Stigma* capitate, hispid. *Legume* with two joints; joints 1-seeded; upper one subuncinate, acuminate into the base of the style. *Diadelphia. Decandria.*

S. elatior Swartz.: stem erect, herbaceous, pubescent on one side; leaves ternate; leaflets lanceolate, smooth, acute; bracts lanceolate, ciliate; spikes few-flowered; legume indurated, 1-seeded.—*S. hispida* Mich.—*Arachis aprica* Walt.

HAB. Sandy woods. Penn. to Car. July, Aug. 2f.—Stem a foot high, branched. *Flowers* yellow, in terminal compact heads. *Pencil Flower.*

14. ÆSCHYNOMENE. Linn.

Calyx 5-cleft, bilabiate; upper lip 2-cleft or 2-toothed; lower one 3-cleft, or 3-toothed. *Corol* papilionaceous. *Stamens* 10, in two equal sets. *Legume* compressed, transversely jointed, erect, exsert; joints 1-seeded.

Diadelphia. Decandria.

Æ. hispida Willd.: stem herbaceous, erect, and with the petioles and peduncles hispid; leaves in many pairs; leaflets linear, obtuse; racemes simples, 3—5-flowered, legumes distinctly stipitate, with 6—9 hispid joints.—*Hedysarum virginicum* Linn.?

HAB. Marshes. Penn. to Car. July, Aug. 3.—Stems 2—3 feet high. *Leaflets* 20—25 pairs. *Flowers* yellow and red.



15. DESMODIUM. De Cand.

Calyx with 2 bracts at base, obscurely bilabiate to the middle; upper lip bifid; lower one 3-parted. *Corol* papilionaceous. *Standard* roundish; *keel* obtuse, not truncate; *wings* longer than the keel. *Stamens* diadelphous (9 and 1); filaments subsistent. *Legume* with many joints; joints compressed, 1-seeded, membranaceous or coriaceous; scarcely dehiscent. *Diadelphia. Decandria.*

1. *D. canadense* De Cand.: leaves ternate; leaflets oblong-lanceolate, somewhat glabrous; stipules filiform; racemes terminal; legumes jointed; joints 4—5, oval, obtuse, triangular, hispid.—*Hedysarum canadense* Linn.

HAB. Dry woods. Can. to Car. W. to Miss. July. 2f.—Stem 3 or 4 feet high, erect. *Leaflets* 3 inches long. *Flowers* purple. *Bush Trefoil.*

2. *D. canescens* De Cand. : stem erect, hairy, with the angles hispid ; leaves ternate ; leaflets ovate, roundish, with whitish appressed hairs beneath ; stipules ovate ; racemes paniced ; bracts cordate ; legumes jointed ; joints triangular, hispid.—*Hedysarum canescens* Linn.—*H. scaberrimum* Ell. ?

HAB. Dry woods. Can. to Car. June—Aug. 2f.—Stem 3—4 feet high, and more scabrous than any other American species. Flowers pale purple, middle-sized.

3. *D. marylandicum* De Cand. : stem erect, pilose, branching ; leaves ternate ; leaflets oblong, villous beneath ; stipules subulate ; racemes paniculate ; legumes 3-jointed ; joints rhomboidal, reticulate, somewhat hairy.—*H. marylandicum* Linn.

HAB. Dry fields and woods. N. Y. to Car. July, Aug. ☉.—Stem hairy above. Flowers purple, in a somewhat loose and slender panicle.

4. *D. obtusum* De Cand. : stem erect or ascending, pubescent ; leaves ternate ; leaflets ovate, obtuse, subcordate at base ; stipules lanceolate-subulate ; panicle terminal ; joints of the legume semi-orbiculate, reticulate, hispid.—*H. obtusum* Muhl. in Willd.

HAB. Woods. N. Y. to Car. July, Aug. 2f.—Stem 2—3 feet high, sometimes cespitose. Flowers purple, in a terminal panicle.

5. *D. viridiflorum* Beck : stem erect ; leaves ternate ; leaflets ovate, obtuse, scabrous on the upper surface, villous and very soft beneath ; panicle terminal, very long, naked ; joints of the legume triangular.—*Hedysarum viridiflorum* Linn. Ell. Torr. not of Pursh.

HAB. Woods. N. Y. to Car. July. 2f.—Stem 3—4 feet high, very scabrous towards the summit. Leaves very scabrous on the upper surface, clothed with a velvet-like tomentum on the under. Flowers purple within, greenish without. This is undoubtedly the true *H. viridiflorum* of Linnæus ; a plant which seems to be quite distinct from the next. See Ell. Sk. ii. 217.

6. *D. aikinianum* Beck : stem erect, branching, pubescent ; leaves ternate ; leaflets ovate-oblong and sub-deltoid, acute, mucronate, scabrous beneath ; stipules lanceolate-cuspidate ; racemes paniculate, bracted ; legumes with scabrous oval joints.—*D. viridiflorum* De Cand. ? —*Hedysarum viridiflorum* Pursh.—*H. aikini* Eat.

HAB. Woods and old fields. N. Y. Penn. July, Aug. 2f.—Stem 3 feet high. Flowers reddish-purple, becoming green when dry. This plant differs from the true *H. viridiflorum* in the leaves being very scabrous beneath, and was very properly separated by Prof. Eaton in the last edition of his Manual of Botany.

7. *D. ciliare* De Cand. : stem erect, branching, pubescent ; leaves ternate, on short petioles ; leaflets small, oval-obtuse, pubescent underneath, fringed along the margin ; racemes axillary and terminal, paniculate ; joints of the legume (2—3) oval, hispid.—*Hedysarum ciliare* Nutt.

HAB. Woods. Penn. to Car. Aug. 24.—A small and slender species about 2 feet high. *Flowers* small, violet, in a slender branched panicle.

8. *D. lævigatum* De Cand.: stem simple, erect, smooth, somewhat glaucous; leaves ternate, on long petioles; leaflets ovate, acute; panicle terminal; flowers in pairs, on long pedicels; bracts ovate, acute, shorter than the flower buds; lower segment of the calyx elongated; joints of the legume triangular.—*Hedysarum lævigatum* Nutt.

HAB. Woods. N. J. to Car. Aug. 24.—Stem 3—4 feet high. *Flowers* purple. The smoothest of the North American species.

9. *D. bracteosum* De Cand.: stem erect, smooth; leaves ternate; leaflets oblong-oval, acuminate, smooth; stipules subulate; racemes terminal, few-flowered; bracts ovate, acuminate, striate, glabrous; legume with suboval joints.—*Hedysarum bracteosum* Mich.

b. cuspidatum De Cand.: leaflets scabrous on the margin; stipules ovate-lanceolate; joints of the legume reticulate, glabrous, pubescent on their margins.—*Hedysarum cuspidatum* Willd.

HAB. Woods. Penn. to Car. Aug. 24.—Stem 3—5 feet high. *Flowers* large, purple, violet.

10. *D. paniculatum* De Cand.: stem erect, smooth, leaves ternate; leaflets oblong-lanceolate, or elliptical, smooth; stipules subulate; panicle terminal; legumes with 4 rhomboidal pubescent joints.—*Hedysarum paniculatum* Linn.

HAB. Dry woods. Can. to Car. W. to Miss. Aug. 24.—Stem 3 feet high, slender. *Leaves* long. *Flowers* purple.

11. *D. strictum* De Cand.: stem stiffly erect, simple, subpubescent; leaves ternate; leaflets sublinear, smooth, reticulate, glaucous beneath; stipules subulate; panicles terminal, pedunculate, few-flowered; legume incurved, with sublunate-triangular hispid joints.—*Hedysarum hirtum* Pursh.

HAB. Pine barrens. N. J. to Car. W. to Miss. Aug. 24.—Stem slender, very erect. *Leaflets* narrow. *Flowers* small, purple, in long axillary and terminal panicles.

12. *D. acuminatum* De Cand.: stem erect, simple, pubescent; leaves ternate, on very long petioles; leaflets ovate, conspicuously acuminate, somewhat hairy, the odd one roundish-rhomboidal; panicle terminal, on a very long peduncle; petioles somewhat pilose; joints of the legume roundish, glabrous.—*Hedysarum acuminatum* Mich.

HAB. Shady woods. Can. to Car. W. to Miss. July, Aug. 24.—Panicle 1—2 feet long. *Flowers* purple.

13. *D. nudiflorum* De Cand.: stem erect, simple, somewhat glabrous; leaves ternate; leaflets broad-ovate, acuminate; scape paniculate, smooth, radical; joints of the legume obtusely-triangular, somewhat glabrous.—*Hedysarum nudiflorum* Linn.

HAB. Woods. Can. to Car. Aug. 24.—Stem 8—10 feet high. *Scape* 2—3 feet long, slender. *Flowers* purple.

14. *D. rotundifolium* De Cand. : stem prostrate, hirsute ; leaves ternate ; leaflets suborbicular, hairy ; stipules roundish-cordate, reflexed ; racemes axillary, paniculate ; joints of the legume subrhomboidal, reticulate, scabrous.—*Hedysarum rotundifolium*. Mich.—*H. canescens*. Willd.

HAB. Rocky woods. N. Y. to Car. Aug. 24.—Racemes few-flowered. Flowers purple.—The southern plant seems to differ from the northern, and may prove distinct.

15. *D. humifusum* Beck : stem prostrate, smooth ; leaves ternate ; leaflets ovate, slightly hairy ; racemes terminal, elongated ; joints of the legume subrhomboidal.—*Hedysarum humifusum*. Muhl. Torr. Big.

HAB. Woods. Mass. Penn. to Car. Muhl. Aug. 24.—Resembles the last, but is smoother and has the leaflets oval or ovate and subacute.—Perhaps only a variety.

16. HEDYSARUM. De Cand.

Calyx 5-cleft ; segments linear-subulate, nearly equal. *Standard* large. *Keel* obliquely truncate ; wings much shorter than the keel. *Stamens* diadelphous (9 and 1.) *Legume* with many joints ; joints compressed, roundish, 1-seeded.

Diadelphia. Decandria.

H. boreale Nutt. : stem subdecumbent ; leaves pinnate ; leaflets (7 or 8 pairs) oblong-ovate, partly villose ; stipules sheathing, subulate ; racemes on long peduncles ; legumes with smooth, rugose, roundish joints.—*H. alpinum* Mich. ?

HAB. Mountains. Can. and Penn. Mich. W. to Fort Mandan, on the Missouri. Nutt. June, July. 24.—Flowers numerous, purple.

17. LESPEDEZA. Mich.

Calyx with bracts at base, 5-parted ; segments nearly equal. *Corol* papilionaceous. *Keel* transversely obtuse. *Stamens* diadelphous (9 and 1.) *Legume* lenticular, compressed, flat, not opening, 1-seeded, unarmed.—Leaves ternate.

Diadelphia. Decandria.

1. *L. reticulata* Pers. : stem erect, simple, nearly smooth ; leaflets oblong-linear, obtuse, mucronate, hairy beneath ; fascicles of flowers subsessile, numerous ; axillary ones subracemose ; legume ovate, reticulate, acute, longer than the calyx.—*L. sessiliflora*, var. Mich.—*L. angustifolia*. Raf.—*Hedysarum reticulatum* Muhl. in Willd.

HAB. Dry woods. N. J. W. to Ill. Aug. 24.—Stem 2 feet high, slender, never branched. Leaflets 2 lines broad. Flowers violet.

2. *L. sessiliflora* Nutt. : stem erect, somewhat branched ; leaves on short petioles ; leaflets oblong-oval, obtuse ; fascicles of flowers subsessile ; axillary ones partly racemose ; legume naked, acute.—*Hedysarum sessiliflorum* Lam.

HAB. Dry woods. N. Y. to Flor. Aug., Sept. 2f.—Stem 2—3 feet high, slender. *Leaves* hairy beneath. *Flowers* violet.

3. *L. sturci* Nutt. : stem simple, erect, softly and sericeously villous ; leaves on very short petioles ; leaflets elliptic-oval, mucronate ; racemes pedunculate, scarcely longer than the leaves ; legumes pubescent, naked, longer than the calyx.

HAB. Sandy fields. N. J. to Car. July, Aug. 2f.—Stem 2—3 feet high, covered with a silky pubescence. *Peduncles* an inch long. *Flowers* purple.

4. *L. frutescens* Ell. : stem erect ; leaves on short petioles ; leaflets elliptical, obtuse, silky-pubescent beneath ; racemes axillary, subsessile, shorter than the leaves ; calyx shorter than the corol ; legume pilose, shorter than the calyx.—*L. fruticosa* Pers.—*Hedysarum frutescens* Linn.

HAB. Dry woods. Penn. to Car. Sept. 2f.—Stem 2—3 feet high. *Flowers* white and red.

5. *L. capitata* Mich. : stem erect, simple ; leaves on very short petioles ; leaflets elliptic, with close pressed hairs beneath ; spikes capitate, on short peduncles, axillary and conglobate-terminal ; calyx villous, as long as the corol, with the legume much longer.—*Hedysarum conglomeratum* Lam.

HAB. Borders of woods. Can. to Car. W. to Miss. July, Aug. 2f.—Stem 2—3 feet high. *Flowers* purple.—This may be only a variety of the last, although it is not so considered by De Candolle.

6. *L. angustifolia* Ell. : stem erect, pubescent ; leaves on very short petioles ; leaflets oblong-elliptic or lanceolate, white pubescent beneath ; racemes capitate, longer than the leaves ; corol longer than the calyx.—*L. capitata*, var. *angustifolia* Pursh.

HAB. Sandy woods. N. Y. to Car. Sept. 2f.—Stem 3—4 feet high. *Leaflets* very narrow, villous beneath. *Flowers* white and purple, in small heads.

7. *L. polystachya* Mich. : stem erect, branched, very villous ; leaves on very short petioles ; leaflets round-oval, obtuse ; spikes oblong, axillary, pedunculate, twice as long as the leaves ; corol and legume about as long as the calyx.—*L. hirta* Ell. Torr.—*Hedysarum hirtum* Linn.

HAB. Dry woods. N. Y. to Car. Aug., Sept. 2f.—Stem 2—4 feet high. *Flowers* reddish-white, in dense racemes on peduncles which are longer than the leaves.

8. *L. violacea* Pers. : diffuse, much branched, somewhat pubescent ; leaves on long petioles ; leaflets elliptic-obtuse, somewhat hairy ; racemes subumbelled, about as long as the leaves ; flowers in pairs, distinctly pedicellate ; legume rhomboidal, reticulate and smooth.—*Hedysarum violaceum* Linn.

HAB. Dry woods. Can. to Car. W. to Miss. July. 2f.—Stem long, slender. *Flowers* violet.—*Lespedeza divergens* of Pursh, is probably only a variety of the above, although Mr. Elliott con-

siders it very distinct. "It is," he says, "distinguished by much larger leaves on much longer petioles, its stem is much more diffusely branched, the peduncles long with the flowers scattered and distinctly racemose."

9. *L. procumbens* Mich.: slender, procumbent, every where pubescent; leaves on long petioles; leaflets oval, obtuse, mucronate; peduncles very long, setaceous; racemes short, subumbellate; flowers in pairs, distinct; legume oval, nearly smooth.—*Hedysarum lespedeza* Lam.

HAB. Sandy woods. Can. to Car. W. to Miss. Aug., Sept.
 2f. Stem 2—3 feet long. Flowers purple, with yellow spots.

10. *L. prostrata* Pursh: smooth, prostrate; leaves on very short petioles; leaflets obovate-elliptic, obtuse; racemes axillary and terminal. subpaniculate; peduncles very long; legumes oval, subpubescent.—*Hedysarum prostratum* Muhl. in Willd.

HAB. Sandy soils. N. J. to Car. Aug. 2f.—Very similar to the preceding species. Flowers violet.

11. *L. repens* Bart.: leaves ternate; leaflets roundish-elliptical; emarginate; racemes axillary; legume repand.—*Hedysarum repens* Willd.

HAB. Woods. Penn. and Virg. Muhl. July. 2f.—This may be identical with the last.

18. VICIA. Linn.

Calyx tubular, 5-cleft or 5-toothed; two upper teeth shorter. *Corol* papilionaceous. *Stamens* diadelphous. *Style* filiform, bearded beneath the stigma. *Legume* oblong, 1-celled, many-seeded. *Diadelphia. Decandria.*

* *Flowers on peduncles.*

1. *V. caroliniana* Walt.: smoothish; leaflets 8—10, elliptical-lanceolate, subalternate, obtuse, mucronate; stipules ovate-lanceolate, entire; peduncles many-flowered, as long as or longer than the leaves; flowers distant; teeth of the calyx short; style villous at the top; legume lanceolate, smooth, obliquely veined.—*V. parviflora* Mich.

HAB. Mountains. Penn. to Car. May, June. 2f.—Stem long and climbing. Flowers small, white. Standard black at the tip.

2. *V. americana* Muhl.: leaflets 8—12, elliptical-lanceolate, obtuse, smooth, mucronate; stipules semisagittate, deeply toothed; peduncles 4—10-flowered, shorter than the leaves.

HAB. Shady woods. Penn. W. to Miss. June. 2f.—Stem long. Leaves distant. Flowers purple. American Vetch.

3. *V. cracca* Linn.: stem branching; leaflets numerous, oblong, alternate and opposite, mucronate, pubescent; stipules semisagittate-linear; peduncles many-flowered, as long as or longer than the leaves;

racemes crowded, secund; teeth of the calyx unequal; upper ones very short; lower ones shorter than the tube; styles hairy at the top; legume oblong, coriaceous, compressed.

HAB. Meadows. N. S. Aug. 24.—*Stem* subpubescent. *Leaves* pinnate. *Flowers* small, pale purple, numerous, drooping and imbricated. *Tufted Vetch.*

** *Flowers* nearly sessile.

4. *V. sativa* Linn.: leaflets 10—12, obovate-retuse or oblong-retuse, mucronate, smooth or hairy; stipules semisagittate, toothed, with a dark spot beneath; flowers mostly in pairs, sessile; calyx cylindric; segments linear-lanceolate, nearly equal; style bearded at the top; legume compressed.

HAB. Fields. Can. to Car. June. ☉.—*Stem* 1—2 feet high. *Flowers* small, blue. A very variable species. *Common Vetch.*

19. ERVUM. Linn.

Calyx 5-cleft, segments linear, acute, nearly equalling the corol. *Stigma* glabrous. Legume oblong, 2—4 seeded.

Diadelphia. Decandria.

* *Legume* broad-oblong, 2-seeded.

1. *E. hirsutum* Linn.: leaflets linear, obtuse, mucronate; stipules semisagittate, narrow; peduncles 3—6-flowered, shorter than the leaves; segments of the calyx linear-lanceolate, equal, longer than the tube; legume oblong, compressed, hairy, finely reticulate; seeds globose, variegated.—*Vicia Michelli* Raf.

HAB. Fields. N. Y. to Car. May, June. ☉.—*Stem* 2—3 feet long, much branched and diffuse. *Leaves* cirrose. *Flowers* very small, bluish-white. *Hairy Tare.*

** *Legume* oblong-linear, 4—6-seeded.

2. *E. tetraspermum* Linn.: stems cespitose, branching; leaflets 4—6, oblong mucronate; stipules lanceolate semisagittate; peduncles 1—4-flowered, filiform; segments of the calyx unequal, broadish, shorter than the tube; legume oblong, compressed, smooth; seeds subglobose, black.—*Vicia pusilla* Muhl.

HAB. Fields, &c. N. S. May, June. ☉.—*Stems* very slender. *Flowers* minute, bluish-white. Smaller and slenderer than the last. *Smooth Tare.*

20. PISUM. Linn.

Segments of the *calyx* leafy; two upper ones shorter. *Standard* large, reflexed. *Style* compressed, keeled, villous above. *Legume* oblong, compressed, not winged. *Seeds* many, subglobose, with a roundish hilum.

Diadelphia. Decandria.

P. maritimum Linn. : stem square, compressed ; petioles flat above ; leaflets 5—8, ovate or rounded, often alternate, somewhat pubescent ; stipules ovate-semisagittate ; peduncles many-flowered, shorter than the leaves ; legumes oblong, obliquely reticulate, small ; seeds small, numerous, roundish.—*Lathyrus maritimus* Big. ?

HAB. Shores of the great lakes. Nutt. Salt marshes, Boston. Big. ? May, July. 2f.—Plant pale green. Flowers blue and purple, large, 6—8 in a raceme.—I insert this plant upon the authority of Pursh, Nuttall and other authors, but have no means of determining whether it is truly a *Pisum*. Dr. Bigelow's plant, of which I have specimens from Dr. C. Pickering, seems to me to be a *Lathyrus* ; but until the question of the identity of these plants is more satisfactorily determined, I have thought proper to leave them as above. Beach Pea.

21. LATHYRUS. Linn.

Calyx campanulate, 5-cleft ; two upper lobes shorter. *Corol* papilionaceous. *Stamens* diadelphous. *Style* flat, dilated at the summit, villous or pubescent on the upper side. *Legume* oblong, many seeded, 2-valved, 1-celled. *Seeds* globose or angled. *Diadelphia. Decandria.*

1. *L. venosus* Muhl. : stem square, naked ; leaves pinnate ; leaflets numerous, (about 5 pairs) ovate, obtuse, subopposite, mucronate, smooth, veined ; stipules semisagittate, ovate ; peduncles many-flowered, shorter than the leaves.

HAB. Low meadows. N. Y. Penn. July, Aug. 2f.—*Leaflets* large. *Flowers* purple. *Viny-leaved Vetchling.*

2. *L. palustris* Linn. : stem smooth, winged, weak ; leaflets in 3-pairs, oblong, mucronate ; stipules semisagittate, acute ; peduncles 3—5-flowered, a little longer than the leaves ; segments of the calyx unequal, sublinear, as long as the tube ; legume compressed.

HAB. Low grounds. Can. and N. S. June, July. 2f.—*Stem* lax. *Leaflets* varying in width. *Flowers* pale purple.

3. *L. myrtifolius* Muhl. : stem weak, flexuous, square ; leaflets 4, oblong-lanceolate, somewhat obtuse, mucronate, rigid, smooth, veined ; stipules semisagittate, lanceolate, acuminate, scabrous on the margin ; peduncles 3—4-flowered, longer than the leaves.

HAB. Salt marshes. N. Y. and Penn. July, Aug. 2f.—*Re-*sembles the former. *Flowers* smaller, purple and rose-coloured.

4. *L. glaucifolius* Beck : stem nearly erect, acute-angled ; leaflets in 3-pairs, ovate, obtuse, mucronate, glaucous and reticulate beneath ; stipules large, semisagittate, broad-ovate, acuminate ; peduncles 4—10-flowered, shorter than the leaves ; legume compressed, glabrous.

HAB. Rocky banks of the Raritan river near New-Brunswick, N. J. May, June. 2f.—This plant appears to me to be decidedly distinct. The *leaflets* are uniformly broader and larger than

in any American species, being from 1 1-2—2 inches long and 1 broad, and very strikingly glaucous on the under side. The flowers also are large and pale yellow. It was first noticed by my lamented friend, the late Rev. John De Witt, D. D. of Rutgers College, who was adding to his other attainments, a knowledge of the botanical productions of the interesting region around New-Brunswick.

22. AMPHICARPA. De Cand.

Calyx campanulate, 4-toothed, without bracts at base; teeth equal, somewhat obtuse. *Corol* papilionaceous. *Petals* oblong. *Standard* broad, incumbent, subsessile. *Stamens* diadelphous. *Style* filiform. *Stigma* capitate. *Legume* compressed, stiped, 1—4-seeded.

Diadelphia. Decandria.

A. monoica Ell. : stem hairy; leaves ternate; leaflets ovate, smooth; racemes of the stem pendulous, bearing petals, sterile; radical peduncles bearing apetalous fertile flowers.—*Glycine monoica* Linn.

HAB. Woods. N. Y. to Car. July, Aug. 24.—*Stem* twining, slender. *Flowers* purple.

23. APIOS. Pursh.

Calyx campanulate, with 4 obsolete teeth, 1 acute and elongated under the keel. *Corol* papilionaceous. *Keel* falcate reflecting the apex of the standard. *Stamens* diadelphous. *Stigma* emarginate. *Legume* coriaceous, many-seeded.

Diadelphia. Decandria.

A. tuberosa Moench.—*Glycine apios* Linn.

HAB. Woods. N. Y. to Car. July, Aug. 24.—*Root* tuberous. *Stem* twining. *Leaves* pinnate; leaflets 5—7. *Flowers* dark purple in axillary racemes. *Ground-nut. Wild Bean.*

24. PHASEOLUS. Linn.

Calyx campanulate, bilabiate; upper lip 2-toothed; lower one 3-parted. *Corol* papilionaceous. *Keel, stamens* and *style* spirally twisted or rarely incurved. *Legume* compressed or cylindric, 2-valved, many-seeded.—*Leaves* ternate.

Diadelphia. Decandria.

1. *P. perennis* Walt. : twining, pubescent; leaflets ovate, acuminate, 3-nerved; racemes 1—3, axillary, paniculate, longer than the leaves; bracts minute; legumes pendulous, broad, falcate, mucronate.—*P. paniculatus* Mich.—*Dolichos polystachyus* Linn.

HAB. Dry woods. N. Y. to Car. W. to Miss. July. 24.—*Stem* long. *Panicle* 6—10 inches long. *Flowers* purplish, large. *Standard* large. *Wild Kidney-bean.*

2. *P. diversifolius* Pers. : stem prostrate ; leaflets ovate, angular, 2—3-lobed ; peduncles angled, longer than the leaves ; flowers in heads ; bracts ovate ; legumes linear, terete, subpendulous, pubescent.—*P. trilobus* Mich.—*Strophostyles angulosa* Ell. Torr.—*Glycine angulosa* Muhl. in Willd.

HAB. Woods. N. J. to Car. Aug. ☉.—Stem prostrate and a little scabrous. Flowers 8—14 at the summit of a peduncle 4—6 inches long, purple. Seeds reniform-cylindrical.

3. *P. helvolus* Linn. : climbing or prostrate ; leaflets deltoid-oblong, subsinuate ; peduncles longer than the leaves, 3-flowered at the top ; wings expanding, very large ; legume erect.—*Strophostyles helvola* Ell. Torr.

HAB. Sandy fields. N. Y. to Car. W. to Miss. July, Aug. ♀.—Stem branching. Flowers purple.

P. vexillatus Linn. : stem prostrate, twining, somewhat hairy ; leaflets oblong-ovate ; peduncles very long ; flowers 5—7 in a head ; standard large, emarginate ; wings small ; legume terete, hairy ; seeds woolly.—*Strophostyles peduncularis* Ell.—*Glycine peduncularis* Muhl.

HAB. Woods. N. J. to Car. July. ♀.—Stem prostrate or climbing. Flowers 5—7 on a common peduncle 6—7 inches long, large, pink and purple.—This species is credited to New-Jersey by Prof W. P. C. Barton and to Pennsylvania by Muhlenberg. It seems to me to be distinct from the preceding.

25. LUPINUS. Linn.

Calyx deeply bilabiate. *Corol* papilionaceous. *Standard* and *wings* reflexed ; *keel* acuminate. *Stamens* monadelphous. *Sheath* entire. *Style* filiform, *Stigma* terminal, roundish, bearded. *Legume* coriaceous, oblong, compressed, obliquely torulose. *Diadelphia. Decandria.*

L. perennis Linn. : herbaceous, perennial ; root creeping ; stem and leaves smoothish ; leaves digitate ; leaflets 8—9, oblong, mucronate, villous beneath ; flowers alternate, on pedicels ; calyx without appendages ; upper lip emarginate, the lower entire.

HAB. Sandy woods. Can. to Flor. W. to Miss. May, June. ♀.—Stem a foot high, ascending, somewhat hairy. Flowers blue, in a terminal spike or raceme. *Common Lupine.*

26. CRAFTORDIA. Raf. De Cand.

Calyx campanulate, 5-cleft ; segments nearly equal. *Standard* large, reflexed ; *wings* appressed, auriculate at base ; *keel* obtuse, longer than the wings. *Stamens* 10, diadelphous. *Style* filiform. *Stigma* punctiform, glabrous. *Legume* subdispermous, linear, torulose, striate. *Seeds* oblong-reniform. Plant twining. *Diadelphia. Decandria.*

C. bracteata Raf. De Cand.

HAB. Banks of the Susquehannah. Penn. Raf.—*Plant* twining. *Leaves* unequally pinnate; *leaflets* sessile, oblong, mucronate. *Peduncles* longer than the leaves, somewhat spiked; bracts scarious, subulate, persistent, ciliate; flowers white.—This genus is said by De Candolle to be allied to *Galega* and *Colutea*, but differs from them as well as from *Teprosia*, by its 2-seeded legume.

SUBORDER II. CÆSALPINEÆ.

Petals imbricated in æstivation. Stamens periginous, mostly free.

27. GLEDITSCHIA. Linn.

Flowers by abortion imperfect, or perfect. *Sepals* 3-4-5, equal. *Petals* as many as the sepals, arising from the tube of the calyx. *Stamens* as many as the sepals and opposite to them, or by abortion fewer. *Style* short. *Stigma* pubescent above. *Legume* compressed, 1 or many-seeded. *Seeds* compressed. *Dioecia. Hexandria.*

G. triacanthos Linn.: branches spiny; spines thick, simple or triple and compound, leaves equally pinnate; leaflets linear-oblong; legume compressed-flat, falcate, many-seeded.—*G. triacanthos* and *brachycarpa* Pursh.

HAB. Woods. N. J. to Car. W. to Miss. A tree sometimes attaining the height of 40 or 50 feet, with very long spines. *Flowers* in axillary racemes. *Legume* 10—12 inches long, many-seeded, the intervals between the cells of the seeds filled with a saccharine pulp. The tree is sometimes unarmed, when it forms the var. *inermis* of De Candolle. *Honey Locust.*

28. GYMNOCLADUS. Lam.

Flowers by abortion dioecious. *Calyx* tubular, 5-cleft. *Petals* 5, equal, oblong, exserted from the tube. *Stamens* 10, included. *Legume* oblong, thick, pulpy within.

Dioecia. Decandria.

G. canadensis Mich.

HAB. Can. N. Y. S. W. to Arkansa. May, June. A middle sized tree. *Leaves* very large, bipinnate; leaflets oval, acuminate, pubescent. *Flowers* white, in racemes. *Legume* large, dark brown. *Coffee Tree.*

29. CASSIA. Linn.

Sepals 5, scarcely united at base, somewhat unequal. *Petals* 5, unequal. *Stamens* 10, free, unequal; 3 lower ones longer; 4 middle ones short and straight; 3 upper ones with abortive anthers. *Anthers* dehiscent at the apex.

Decandria. Monogynia.

1. *C. marylandica* Linn.: nearly smooth; leaflets in 8 or 9 pairs, ovate-oblong, mucronate, equal; gland at the base of the petiole ovate; racemes axillary, many-flowered, shorter than the leaves; legume compressed, linear, hispid, at length smooth.

HAB. Banks of streams. N. Y. to Car. W. to Miss. July, Aug. 2f.—Stem 3—4 feet. Flowers yellow, large, in axillary racemes, which appear paniculate at the summit of the stem. Medicinal Big. Med. Bot. i, 166. Wild Senna.

2. *C. fasciculata* Mich.: nearly smooth; leaflets in 8 or 9 pairs, oblong-linear, mucronate; gland near the middle of the petiole, sessile; fascicles lateral, many-flowered; petals and stamens of the same colour; legume smooth, curved, ascending.

HAB. Dry fields. N. Y. to Car. June—Aug. ☼.—Flowers yellow.

3. *C. nictitans* Linn.: stem erect or pubescent, branched; leaflets in 16—20 pairs, oblong-linear, obtuse, mucronate; gland on the petiole cup-shaped, on a slender foot-stalk; peduncles subaxillary, short, few-flowered; flowers pentandrous; legume pubescent.

HAB. Sandy banks of streams. N. Y. to Car. June, July. ☼.—Stem a foot high. Flowers small, yellow. The leaves are somewhat irritable like the mimosa or sensitive plant.

Wild Sensitive Plant.

4. *C. chamæcrista* Linn.: smoothish; leaflets in 10—15 pairs, oblong-linear, mucronate; gland sessile on the petiole; peduncles 2—3-flowered, above the axils, shorter than the petiole; 2 of the petals spotted; legume pubescent.

HAB. Sandy places. N. Y. to Car. W. to Miss. June—Aug. ☼.—Stem a foot or more high. Flowers yellow, sometimes the base of all the petals spotted.

30. CERCIS. Linn.

Calyx 5-toothed, gibbous at base. *Petals* 5, with claws, subpapilionaceous, all distinct; *wings* large. *Stamens* 10, free, unequal. *Legume* oblong, compressed, 1-celled, many-seeded; upper seminiferous suture margined. *Seeds* obovate. Decandria. Monogynia.

C. canadensis Linn.: leaves roundish-cordate, acuminate, villous at the axils of the nerves; legumes on short foot-stalks; flowers in small fascicles.

HAB. Woods. Can. to Car. W. to Miss. April. A small tree with greyish bark. Flowers appearing before the leaves, of a dark rose colour. Judas Tree. Red Bud.

ORDER XXXVI. AMYGDALÆ. Lind.

Calyx 5-toothed, deciduous, the odd lobe superior. *Petals* 5. *Stamens* about 20, in æstivation curved inwards; *anthers*

erect, 2-celled. *Torus* lining the tube of the calyx. *Ovary* superior, solitary, simple, one-celled; *styles* terminal, with a groove on each side; *stigma* reniform. *Fruit* a drupe. *Seeds* usually solitary, suspended from the funiculus, which arises from the base of the cavity, but coheres with its sides. *Embryo* straight, with the radicle next to the hilum; *albumen* none; *cotyledons* thick.

Trees or *shrubs*. *Leaves* simple, alternate, stipulate. *Hydrocyanic acid* present in the leaves and kernel.

1. PRUNUS. Linn.

Drupe ovate or oblong, fleshy, very smooth, covered with greyish dust; *putamen* compressed, acute at both ends, subsulcate at the margin, elsewhere smooth.—(Plum.)

Icosandria. Monogynia.

1. *P. maritima* Willd.: peduncles solitary; leaves ovate-oblong, acuminate, doubly serrate; fruit dark purple.—*P. acuminata* Mich.

HAB. Sea coast. N. J. to Car. May. ♀.—Fruit about the size of the common garden plum, dark purple. *Beach Plum.*

2. *P. Americana* Marsh.: leaves oblong-oval, acuminate, sharply serrate, veined; umbel 2—4 flowered.—*P. nigra* Muhl. not of Ait.

HAB. Penn. Aug. ♀.—A tree 8—15 feet high. *Flowers* white. *Fruit* reddish-yellow. By cultivation the fruit becomes large and luscious. Dr. Darlington, who notices this species in his *Florula Cestrica*, thinks it has not been described by any one except Marshall.—*Abustrum Americanum* p. iii.—He remarks, “I certainly should not have expected to find it under the specific name *nigra*, if Dr. Muhlenberg’s catalogue had not directed my attention to that species, by the subjoined English name ‘*Yellow Plum.*’ I think it cannot be the *P. nigra* of Aiton, Willdenow, Persoon, &c. for they seem evidently to refer to a species of cherry, properly so called. This species, though clearly distinct, approaches nearer to the *Chicasa* plum than to any other which I have seen.” *Yellow Plum. Brandywine Plum.*

3. *P. mollis* Torr.: younger branches leaves and peduncles pubescent; umbels sessile, 2—3 flowered; leaves ovate, long-acuminate, doubly dentate-serrate; stipules setaceous, denticulate; calyx nearly smooth; segments linear-lanceolate, serrate.

HAB. Mass.—A small tree. *Flowers* large. *Fruit* oval, nearly black when ripe.

4. *P. spinosa* Linn.: branches spiny; peduncles solitary, calyx campanulate; lobes obtuse, longer than the tube; leaves obovate-elliptic or ovate, pubescent beneath, coarsely and doubly dentate; fruit globose.

HAB. Hedge rows. Penn. ♀.—Introduced. *Pursh.*

Black Thorn or Sloe.

2. CERASSUS. *Juss.*

Drupe globose or umbilicate at base, fleshy, very smooth, destitute of grey powder; nucleus subglobose, smooth.—
(Cherry.) *Icosandria. Monogynia.*

* *Flowers umbelled; pedicels 1-flowered, arising from the buds.*

1. *C. pumila Mich.*: striate; branches virgate; flowers subumbelled, peduncled; calyx short, campanulate; leaves obovate-oblong, erect, glaucous beneath, serrulate, smooth; fruit ovate.—*Prunus pumila Lam.*

HAB. Banks of streams. Mass. to Virg. May. ♀.—*Shrub* 2—3 feet high. *Fruit* small, ovate, red, acid.

2. *C. pygmæa De Cand.*: unarmed; umbels sessile, few-flowered; leaves ovate-elliptic, somewhat acute, smooth on both sides, sharply serrate, attenuate, with two glands at the base.—*Prunus pygmæa Willd.*

HAB. New-England, N. Y. and Penn. May. ♀.—*Shrub* 3—4 feet high. *Fruit* black, of an indifferent taste, and about the size of a large pea.

3. *C. pubescens De Cand.*: umbels sessile, few-flowered; peduncles and calyx pubescent; leaves short-oval, serrulate, mostly with two glands at base; fruit globose.—*Prunus pubescens Pursh.*—*P. sphaerocarpa Mich.*—*P. littoralis Big.*

HAB. Sandy shores. N. Eng. Penn. May. ♀.—*Shrub* 2—4 feet high. *Fruit* shortly pedunculate, purplish, sour and astringent.—The description of Dr. Bigelow's *P. littoralis*, does not differ materially from the above, except in the fruit, which is large, (sometimes an inch in diameter) globular, eatable, with the flavor of the common plum. It may be distinct.

Sand Cherries.

4. *C. nigra De Cand.*: unarmed; umbels solitary, sessile, few-flowered; leaves deciduous, ovate, acuminate, unequally and acutely serrate, smooth on both sides; petioles with two glands; segments of the calyx obtuse, glandular on the margin; petals obovate.—*Prunus nigra Ait.*

HAB. Mountains. Can. N. Y. and N. Eng. June. ♀.—*Shrub* 6—8 feet high.

5. *hyemalis Mich.*: flowers umbelled, smooth; segments of the calyx lanceolate; leaves oblong-oval or oboval, abruptly acuminate; fruit subovate.

HAB. Can. Virg. and Car. May, ♀.—*Fruit* small, black, extremely astringent, but eatable in winter. *Pursh.*

Black Choke Cherry.

6. *C. depressa De Cand.*: branches angular, depressed, prostrate; umbels few-flowered, sessile, aggregated; leaves cuneate-lanceolate, remotely serrate, smooth, glaucous beneath; fruit ovate.—*C. pumila Mich.* not *Prunus pumila Linn.*—*P. depressa Pursh.*

HAB. Banks of streams. Can. to Virg. May. ♀.—A low shrub with spreading branches. Fruit black, small and agreeably tasted.

7. *C. borealis* Mich.: flowers sub-corymbed; pedicels elongated; leaves oval-oblong, acuminate, membranaceous, glabrous, erose-denticulate, smooth; fruit subovate.—*Prunus borealis* Pursh.

HAB. Mountains. Can and N. S. May. ♀.—A small tree with delicate leaves, and hard and fine grained wood. Fruit small, red, agreeable to the taste, but astringent. Pursh.
Choke Cherries.

** Flowers racemose, arising from the branches.

8. *C. pennsylvanica* De Cand.: umbels subsessile, aggregated, at length becoming paniculate; leaves oblong-lanceolate, acuminate, smooth, with two glands at the base; branches punctate.—*Prunus lanceolata* Willd.—*P. pennsylvanica* Ait.

HAB. Woods. N. S. N. to Subarctic America. April, May. ♀.—A sizeable tree, resembling *Prunus cerasus*. Fruit small, red and astringent.—Muhlengberg and Torrey have, I think without reason, confounded this species with *P. borealis*. Both are retained by De Candolle, and they are even arranged by him under different sections of his genus *Cerasus*.

9. *C. virginiana* Mich.: racemes erect, elongated; petals orbicular; leaves oblong, acuminate, dentate, smooth on both sides; petioles with 2—4 glands; fruit dark red.—*Prunus virginiana* Linn.

HAB. Woods. Can. to Flor. W. to Miss. N. to Arc. Amer. May. ♀.—A large tree with blackish rough bark and very dense wood, resembling mahogany, which is much used by cabinet makers. Flowers white, in long simple racemes. Fruit purplish-black.

10. *C. serotina* De Cand.: racemes loose, at length pendulous; leaves deciduous, oval or obovate, with a short acumination, opaque, doubly and very sharply serrate; midrib bearded on each side towards the base; petiole with two glands.—*Prunus serotina* Willd.

HAB. In woods. N. S. June. ♀.—A large tree, resembling the preceding in its bark and wood. The fruit is dark red and astringent. According to Dr. Torrey, this species has been confounded with the preceding by Michaux and other botanists, and both are incorrectly described by Willdenow and Pursh.

11. *C. obovata* Beck: racemes spreading; leaves obovate, acute, mostly obtuse at base and sometimes cordate, sharply serrate, smooth, except the axils of the lower veins beneath; petioles mostly with two glands.—*Prunus obovata* Big.—*P. serotina* Pursh not of Willd.?

HAB. Margins of woods. Can. to Car.? May. ♀.—A shrub 3—4 feet high, rarely rising to the height of a small tree. Fruit small, red and bitter.—I have long been acquainted with this shrub which is certainly distinct from *C. serotina* as above described. It may be identical with *Prunus hirsutus* of Elliott.

12. *C. canadensis* De Cand.: flowers in racemes; leaves deciduous,

without glands, broad-lanceolate, acutely serrate, rugose, pubescent on both sides.—*Prunus canadensis* Willd.

HAB. In Penn. Muhl. This is supposed by Pursh to be a mere variety of *P. hiemalis* of Mich.

ORDER XXXVII. ROSACEÆ. Lind.

Calyx 4 or 5-lobed, with a disk either lining the tube or surrounding the orifice; the fifth lobe next the axis. *Petals* 5. *Stamens* indefinite; *anthers* 2-celled. *Torus* thick, lining the tube of the calyx, bearing at its margin the stamens and petals, and on its surface the carpels. *Ovaries* superior, solitary or several, 1-celled; *ovules* 2 or more, suspended; *styles* persistent, lateral; *stigmas* usually simple and emarginate on one side. *Fruit* either 1-seeded nuts, or acines, or follicles containing several seeds. *Seeds* suspended, rarely ascending. *Embryo* straight, with a taper short *radicle* next to the hilum, and flat *cotyledons*; *albumen*, if present, fleshy.

Herbs or *shrubs*. *Leaves* simple or compound, with 2 stipules at base.

1. SPIRÆA. Linn.

Calyx 5-cleft, persistent. *Petals* 5. *Stamens* 10—50. *Carpels* 1—many, distinct, rarely united at base, short apiculate, sessile, rarely stiped. *Seeds* 2—6.

Icosandria. Di-Pentagynia.

* *Shrubby. Leaves lobed and toothed.*

1. *S. opulifolia* var. *tomentella* De Cand.: leaves ovate, 3-lobed, doubly toothed and crenate, petioled, smooth; corymbs terminal, hemispherical, peduncled; flowers numerous (30—40) trigynous; pedicels pubescent; lobes of the calyx ovate, obtuse, pubescent; capsules large, inflated, compressed; seeds obovate, shining, yellow.—*S. opulifolia* Pursh. Mich. Torr.

HAB. Banks of streams. Can. to Geor. W. to Miss. June, July. h.—A shrub 3—6 feet high. *Flowers* white, in a corymb. —According to De Candolle the Linnæan *S. opulifolia* has the pedicels and calyx smooth. *Nine-bark. Hard-hack.*

** *Shrubby. Leaves entire or toothed.*

2. *S. hypericifolia* De Cand.: leaves obovate-oblong, 3—4 nerved, entire or dentate, glabrous or slightly pubescent; nerves pinnate; flowers in peduncled corymbs or sessile umbels; pedicels smooth or pubescent; segment of the calyx ascending.

b. *plukenetiana* De Cand.: leaves entire, smooth, corymbs sessile. —*S. hypericifolia* Linn. Pursh. Muhl.

d. crenata De Cand. : leaves obovate, crenulate at the apex, somewhat pubescent ; corymbs-sessile ; pedicels slightly pubescent.—*S. crenata* Linn. Muhl.

HAB. var. *b.* Dry swamps. Can. and N. Y. May. ½.
Pursh. var. *d.* N. Y. Muhl.—This species according to De Candolle is very variable, and includes several which have heretofore been considered distinct. It is sometimes cultivated in our gardens, and was formerly known by the name of *Hypericum frutex*, but I believe, it has not been found native ; and the only authorities for the varieties here mentioned as American plants, are those above given.

3. *S. corymbosa* Raf. : leaves oblong-obovate, incisely toothed, pubescent beneath ; corymb terminal, pedunculate, compound, fastigiate, somewhat leafy ; flowers pentagynous.—*S. corymbosa* Muhl. ?
S. chamædrifolia Pursh. ?

HAB. Alleghany mountains. Raf. May, June. ½.—Stem 18 inches high, slightly pubescent. Leaves nearly smooth above, pale beneath. Flowers pale rose-colour, in a compound pedunculatecorymb.—I adopt the above description, &c. from Torrey's Flora ; though De Candolle still retains Pursh's plant as a variety of the Linnæan *S. chamædrifolia*.

4. *S. salicifolia* Linn. : stem and peduncles glabrous ; leaves lanceolate, acutely serrate, smooth ; racemes in dense terminal compound panicles ; flowers pentagynous ; segments of the calyx ovate, spreading.—*S. alba* Ehrh.

HAB. Meadows. Can. to Car. N. to Arc. Amer. July. ½.—Stem 2—4 feet high. Flowers white.—This species varies somewhat in the form of the leaves.

5. *S. tomentosa* Linn. : stem and peduncles reddish tomentose ; leaves ovate-lanceolate, unequally serrate, densely tomentose beneath ; racemes terminal, compound, crowded ; flowers pentagynous ; segments of the calyx tomentose on the outer side, reflexed ; capsules 5, distinct.

HAB. In low grounds. Can. to Car. July, Aug. ½.—Stem 2—3 feet high. Flowers small, pale purple, in a very dense elongated conical raceme. Hard-hack.

*** Herbaceous. Leaves pinnate.

6. *S. aruncus* var. *americana* Pursh : leaves twice or thrice pinnate, shining ; leaflets acuminate, lateral ones lanceolate, terminal one ovate ; spikes slender, in an oblong panicle ; flowers very numerous, trigynous, perfect.—*S. aruncus* Ell.

HAB. Mountains. N. Y. to Geor. W. to Miss. June. ¼.—Stem 4—6 feet high. Flowers white, small, in slender terminal spikes. Goat's-beard.

7. *S. lobata* Jacq. : leaves palmate-pinnate, smooth, lower ones bipinnate ; terminal leaflet much larger and 7-lobed ; lateral leaflets 3-lobed ;

stipules reniform; corymbs proliferous; flowers with 3—5 short styles; sepals reflexed.—*S. palmata* Linn.

HAB. Penn. to Car. June. 2f.—Flowers rose-colour, in a compound cyme.

2. GILLENIA. *Manch. Nutt.*

Calyx tubular-campanulate, contracted at the mouth, 5-cleft. *Petals* 5, linear-lanceolate, somewhat unequal, coarctate at the claws. *Stamens* 10—15, included. *Styles* 5, contiguous. *Stigmas* capitate. *Capsule* 5-celled; cells 2-seeded. *Icosandria. Di-Pentagynia.*

1. *G. trifoliata* *Manch.* : leaves ternate; leaflets lanceolate, serrate, subequal; stipules small, linear, entire; flowers in loose terminal panicles, large.—*Spiraea trifoliata* Linn.

HAB. Shady woods. N. J. to Geor. W. to Miss.; rare. June.

2f.—Stem 2—3 feet high. Flowers white, in a few flowered terminal panicle. *Petals* long. Medicinal, emetic, &c.—*Bart. Veg. Mat. Med.* i. 69. *Big. Med. Bot.* iii. 11.

Indian Physic. Ipecac.

2. *G. stipulacea* *Nutt.* : radical leaves pinnatifid; stem leaves ternate; leaflets incisely serrate; stipules foliaceous, ovate, incisely toothed and clasping; flowers in loose terminal panicles, large.—*Spiraea stipulata* *Muhl.*

HAB. Western part of N. Y. W. to Miss. S. to Car. June.

2f.—It resembles the former, but can readily be distinguished by its large clasping stipules. I have fine specimens gathered in the western part of N. Y. by David Thomas, Esq.

3. DRYAS. *Linn.*

Calyx 8—9 parted, naked without; tube somewhat concave. *Petals* 8—9. *Stamens* many. *Carpels* many, crowned by a terminal style, at length terminating in a bearded plumose awn. *Seed* ascending. *Icosandria. Polygynia.*

D. integrifolia *Vahl.* : leaves very entire, acute at base.—*D. tenella* *Pursh.*

HAB. On the white hills of N. H. July. 2f.—Peduncles 1-flowered.—Scarcely differs from *D. octopetala* found in the north western part of Canada.

4. GEUM. *Linn.*

Calyx with the tube concave; 10-cleft; the alternate segments smaller (or limb 5-cleft and 5-bracted.) *Petals* 5. *Stamens* many. *Carpels* in a head, awned; awn naked or bearded, mostly jointed. *Icosandria. Polygynia.*

1. *G. strictum* Ait.: hairy; leaves all interruptedly pinnate; the terminal leaflet larger; leaflets ovate, dentate; stipules ovate, incised; calyx with 5 alternate segments, linear and short; flowers erect; petals roundish, a little longer than the segments; awns naked, uncinatè.—*G. canadense* Murr.

HAB. Swamps. Can. and N. S. Aug. 24.—Stem 2 feet high. Flowers large, yellow. Yellow Awns.

2. *G. virginianum* Linn.: pubescent; radical lower stem leaves ternate; the upper lanceolate; stipules ovate, nearly entire; flowers erect; petals shorter than the calyx; awns uncinatè, naked, hairy and twisted at the summit.

HAB. Shady woods. Can. to Car. W. to Miss. June, July. 24.—Stem 2 feet high, erect. Lower leaves large, sometimes quinate. Flowers yellowish-white, on long peduncles. Virginian Awns.

3. *G. album* Willd.: pubescent; radical leaves pinnate; stem leaves ternate; the upper one simple, 3-cleft; lower stipules incised; flowers erect; petals as long as the calyx; awns uncinatè, naked, hairy at the summit.—*G. canadense* Jacq.

HAB. Banks of streams. Can. to Car. June, July. 24.—Stem 2 feet high. Flowers white, on short peduncles.—De Candolle thinks it may be a variety of the former. White Awns.

4. *G. rivale* Linn.: pubescent; stem simple, 1—4 flowered; radical leaves interruptedly pinnate; lobes obovate, doubly-serrate; stem leaves 3-lobed; lobes acute; flowers nodding; petals as long as the calyx; awns plumose, nearly naked at the summit, minutely uncinatè,

HAB. Moist places. Can. and N. S. May, June. 24.—Stem 18 inches high. Flowers large, terminal, several on each branch, dark purple. Water Awns.

5. *G. peckii* Pursh.: somewhat hairy; stem few-flowered; radical leaves reniform, incisely toothed and somewhat lobed; petioles elongated, with minute leaflets; petals roundish, longer than the calyx.

HAB. White hills, N. H. July, Aug. 24.—Stem 8—10 inches high. Radical leaves on long petioles. Flowers yellow, middle sized.

6. *G. geniculatum* Mich.: stem branched above; stem leaves sessile, 3-parted; stipules entire; flowers somewhat panicled; petals obcordate-cuneate; awns hairy, geniculate in the middle.

HAB. Canada. Mich. An obscure species.

5. COMAROPSIS. Rich.

Calyx with the tube turbinate, the limb 5-cleft, not bracted. Petals 5, without claws. Stamens numerous. Carpels small,

with an elongated filiform style at the apex. *Acines* dry, not united at base. *Icosandria. Polygynia.*

C. fragarioides De Cand.: carpels smoothish; peduncles branched, 3-flowered; petals thrice as large as the calyx; leaves ternate; leaflets wedge-form, sessile.—*Dalibarda fragarioides* Mich. Pursh. Torr.

HAB. Woods. Can. to Car. May. 24.—Root creeping. *Scapes* 3—4 inches high. *Leaves* on long petioles, ternate, rarely quinately, incisely serrate. *Flowers* 3—5, yellow. *Dry Strawberry.*

6. RUBUS. Linn.

Calyx flat at base, naked, 5-cleft. *Petals* 5. *Stamens* many, inserted into the calyx. *Berry* composed of many cohering fleshy carpels or acines. *Receptacle* nearly dry. *Icosandria. Polygynia.*

* *Leaves* pinnate or ternate, white-downy beneath.

1. *R. strigosus* Mich.: stem terete, strongly hispid; leaflets in threes, or pinnate in fives, oval, obtuse at the base, marked with lines and whitish-downy beneath, the terminal one often subcordate; peduncles somewhat 3-flowered and with the calyx hispid; flowers in terminal racemes; petals obovate, longer than the calyx.—*R. pennsylvanicus* Lam.

HAB. Rocky hills. Can. to Virg. N. to Subarc. Amer. May. 12.—*Stem* upright, without prickles, but covered with stiff bristles, of a reddish colour. *Flowers* white. *Fruit* red, richly flavoured. *Red Raspberry.*

2. *R. occidentalis* Linn.: somewhat smooth; stem terete, glaucous, armed with strong recurved prickles; leaves of the sterile branches pinnate, of the fertile ones ternate; leaflets ovate, coarsely serrate, hoary-tomentose beneath; petioles terete; flowers in terminal racemes; lobes of the calyx lanceolate-linear, tomentose at the apex; petals obovate-wedgeform, 2-lobed, shorter than the calyx.

HAB. Side hills. Can. to Car. N. to Subarc. Amer. May—July. 12.—*Stem* 4—5 feet high. *Flowers* white. *Fruit* roundish, black and reddish. *Wild Raspberry.*

3. *R. idaeus* Linn.: villose; stem terete, with slender recurved prickles; leaves of the sterile branches pinnate, of the fertile ones ternate; leaflets rhombic-ovate, acuminate, white and very downy beneath; petioles channelled; flowers somewhat corymbd; lobes of the calyx ovate-lanceolate, white-tomentose, submucronate; petals obovate-wedgeform, entire, shorter than the calyx.

HAB. Hedges and woods. Can. to Penn. Pursh. June. 12.—*Stem* 2—4 feet high. *Flowers* white, paniced. *Fruit* red. It is said to have several varieties.

** *Leaves palmate, with 3—5 leaflets.*

† *Frutescent.*

4. *R. setosus* Big. : stem strongly hispid ; branches setose at the apex ; leaves ternate or quinate, on long petioles ; leaflets obovate-wedgeform, simply serrate, smooth, of the same colour on both sides ; flowers in racemes, with bristly pedicels ; petals obovate-wedgeform, longer than the calyx.

HAB. Swamps. Can. and Mass. Big. June. ♀.—*Flowers white. Fruit red. Bristly Raspberry.*

5. *R. cuneifolius* Pursh : stem petioles and peduncles tomentose ; prickles few, recurved ; leaves ternate and quinate, palmate ; leaflets wedgeform, ovate, entire at the base, subplicate, tomentose beneath ; flowers in terminal panicles ; pedicels divaricate, naked, 1-flowered.—*R. parviflorus* Walt.

HAB. Sandy fields. N. J. to Car. June. ♀.—*Stem 2—3 feet high. Flowers white. Fruit black, ovate, juicy, eatable.*

6. *R. frondosus* Big. : stem prickly, erect ; leaves ternate or quinate ; pubescence simple ; racemes leafy, about ten-flowered ; petals orbicular.

HAB. Road sides, near Boston. Big. May, June. ♀.—*Flowers white, large. Fruit black, agreeable.*—Approaches *R. villosus*, and has probably been confounded with it, but differs, according to Dr. Bigelow, in habit, and in having the pubescence simple, the flowers in leafy racemes, and the petals orbicular-ovate. *Leafy Raspberry.*

7. *R. villosus* Ait. : pubescent, hispid and prickly ; leaves ternate, rarely quinate-palmate, villose ; leaflets ovate, doubly serrate ; flowers in lax panicles ; lobes of the calyx short-acuminate ; pedicels solitary.

HAB. Fields and hedges. Can. to Car. June. ♀.—*Stem 4—6 feet high. Flowers white, 20 or more in a raceme. Fruit large, black. High Blackberry.*

8. *R. hispidus* Linn. : stem sarmentose-procumbent, and with the petioles and peduncles strongly hispid ; prickles few, recurved ; leaves in threes or fives, palmate ; leaflets unequally dentate, smoothish, wedgeform at base ; pedicels solitary, elongated ; petals obovate.—*R. tricalis* Mich.—*R. procumbens* Muhl.—*R. flagellaris* Willd. (According to Sprengel.)—*R. sempervirens* Big. ?

HAB. Barren grounds. Can. to Car. May, June. ♀.—*Flowers white. Berries large, black and well flavoured.*—Sprengel's views concerning the identity of the above supposed distinct species, appear to me to be entirely correct. *Low Blackberry. Dewberry.*

9. *R. canadensis* Linn. : stem purple, smoothish ; leaves in threes and fives, palmate ; leaflets lanceolate, acutely serrate, naked on both sides ; stipules linear, subaculeate ; pedicels elongated, 1—3-flowered ; calyx 5—7-cleft.—*Cylactis montana* Raf.

HAB. Woods and swamps. Can. to N. J. June. ♀.—Stem creeping. Flowers white. Fruit small, dark red, well tasted.

†† Herbaceous.

10. *R. saxatilis* var. *canadensis* Mich.: herbaceous, pubescent; stems creeping; leaves ternate; leaflets rhombic, acute, incisely dentate, naked, the terminal one petioled; flowers somewhat in threes; pedicels elongated.

HAB. Mountains. Can. to Vir. N. to the sources of the Mississippi. June, July. 2f.—Flowers white. Fruit small, black.

11. *R. acaulis* Mich.: stem herbaceous, very short, unarmed, 1-flowered; leaves ternate-palmate; leaflets ovate, rhomboidal, coarsely serrate; peduncle somewhat pubescent; lobes of the calyx lanceolate-linear, somewhat acute, with the oblong petals much shorter; filaments dilated; styles subclavate, approximate.—*R. pistillatus* Smith.

HAB. Can. and N. Y. W. to N. W. coast. June, July. 2f.—Flowers rose-colour, Fruit red.—Resembles *R. arcticus*.

12. *R. agopodioides* De Cand.: stem herbaceous, somewhat pubescent, unarmed; leaves ternate and quinate, palmate, very smooth; leaflets lanceolate, acutely and doubly serrate, ciliate, many-nerved; flowers terminal, in pairs, peduncles elongated, pubescent; lobes of the calyx lanceolate, acute, shorter than the corol.—*R. saxatilis* Big. sec. De Cand.

HAB. White mountains, N. H. June. ☉.—Stem a foot high. Flowers white.

13. *R. obovalis* Mich.: stem becoming a little woody, hispid with stiff hairs; leaves ternate; leaflets obovate-roundish, serrate, naked; racemes subcorymbed, few-flowered; bracts ovate; pedicels elongated.

HAB. Mountain swamps. N. Y. to Car. June, July. 2f.—Berries with only a few large grains, black and sweet.—Allied to *R. saxatilis*.

*** Leaves simple, lobed, but neither pinnate nor palmate.

14. *R. parviflorus* Nutt.: stem suffruticose, unarmed; leaves simple-palmate lobed; peduncles about 3-flowered; lobes of the calyx ovate, acuminate, villose; petals ovate-oblong, shorter than the calyx.

HAB. Island of Michilimackinac. Nutt.—Flowers small, white.

15. *R. chamæmorus* Linn.: root creeping; stem simple, 1-flowered, somewhat pubescent, unarmed; leaves somewhat kidney-form, plicate, denticulate, lobes rounded; flowers monoecious; lobes of the calyx lanceolate subentire, longer than the corol; petals obovate.

HAB. High mountains. Can. and N. Eng. N. to Arctic Amer. May, June. 2f.—Flowers white. Fruit yellow or amber coloured.

16. *R. odoratus* Linn.: stem fruticose, erect; petioles, peduncles and calyx glandular-pilose; leaves 5-lobed, unequally dentate; flowers sub-

corymbed ; lobes of the calyx ovate, long acuminate, shorter than the corol ; petals nearly round.

HAB. Rocks. Can. to Geor. June. 5.—Stem 3—4 feet high.
Flowers large, purple. Fruit large, yellow, well flavored, but not abundant.
Flowering Raspberry.

7. DALIBARDA. Linn.

Calyx with the *tube* short concave ; *limb* 5—6-cleft, naked without ; *lobes* dentate. *Petals* 5. *Stamens* many, deciduous. *Ovaries* 5—10, with short terminal styles. *Acines* few, dry, adhering to the calyx. *Icosandria. Polygynia.*

D. repens Linn. : stem creeping ; leaves simple, cordate, crenate ; stipules linear-setaceous ; peduncles 1-flowered ; calyx smooth without, reflexed.—*F. violacoides* Mich.—*Rubus dalibarda* Linn.

HAB. Mountains. Can. and N. S. June. 24.—Stems herbaceous, rooting and creeping. Leaves on long petioles. Flowers solitary, white, on long nearly radical peduncles.

8. FRAGARIA. Tourn.

Calyx with the *tube* concave, 5-cleft, and with 5 bracts without, (or 10-cleft.) *Petals* 5. *Stamens* many. *Carpels* naked, fixed on a long pulpy deciduous receptacle. *Style* lateral. *Icosandria. Polygynia.*

1. *F. virginiana* Linn. : leaflets broad-oval, smoothish above, the lateral ones distinctly petioled ; hairs of the petioles spreading, of the peduncles appressed ; peduncles and petioles of the length of the leaves ; receptacle pendulous ; styles long.

HAB. Fields. From Arctic America to Florida, and W. to the Miss. May. 24.—Stem short. Flowers white.

Wild Strawberry.

2. *F. canadensis* Mich. : larger ; leaflets broad-oval, lateral ones manifestly petioled ; pedicels long, recurved-pendulous ; receptacle of the seeds globose, favose-scribiculate, villous.

HAB. Sandy woods. Can. and N. S. N. to Hudson's Bay. April, May. 24.—Much larger than the former and apparently distinct, although generally considered identical. I have fine specimens from the vicinity of Little Falls, N. Y.

Mountain Strawberry.

3. *F. vesca* Linn. : stoloniferous ; lobes of the leaves plicate, thin, pilose beneath ; fruit pendulous ; sepals reflexed after flowering ; peduncles with appressed hairs.

HAB. Fields. N. S. April, May. 24.—Introduced. There are a great many cultivated varieties of this species.

Common Strawberry.

9. POTENTILLA. — Linn.

Calyx with the tube concave; limb 4—5 cleft, 4—5-bracted without (or 8—10-cleft.) *Petals* 4—5. *Stamens* many. *Carpels* many, roundish, rugose, naked, fixed to a small dry receptacle. *Icosandria. Polygynia.*

* *Leaves ternate-palmate.*

1. *P. norvegica* Linn.: hirsute; stem erect, dichotomous above; leaves ternate-palmate; leaflets lanceolate or obovate, simply and doubly serrate; stipules lanceolate; flowers numerous, subcorymbed and axillary; petals obcordate, shorter than the calyx; lobes of the calyx lanceolate, acute.

HAB. Old fields. Can. to Car. N. to Arc. Amer. June—Aug.

☉.—Stem 8—10 inches high. Flowers yellow. Stipules large. Perhaps introduced. Norway Cinquefoil.

2. *P. hirsuta* Mich.: stem erect, hirsute, dichotomous above; leaves ternate, petiolate; leaflets obovate-wedgeform, deeply dentate; stipules lanceolate, subentire; flowers axillary, subcorymbed; petals oblong-linear, shorter than the calyx; carpels rugulous.—*P. morisoni* De Cand.

HAB. Western part of N. Y. N. to Subarc. Amer. July. ☉.

—Stem very hairy. Flowers few, in a terminal dichotomous panicle, yellowish-white.—Perhaps only a variety of the former.

3. *P. tridentata* Ait.: smoothish; stem ascending, dichotomous; leaves ternate-palmate; leaflets obovate-wedgeform, coriaceous, 3-toothed at the summit, pubescent beneath; stipules lanceolate, acuminate; corymb loose, few-flowered; petals oblong-obovate, longer than the calyx.

HAB. Mountains. Arc. Amer. to Car. June, July. 2f. Stem 3—6 inches high. Flowers white.

** *Leaves digitate.*

4. *P. canadensis* Linn.: silky villous; stem procumbent and ascending, somewhat branched; leaves quinate-palmate; leaflets obovate-wedgeform, acutely dentate; stipules lanceolate, somewhat obtuse; peduncles solitary, elongated; lobes of the calyx linear-lanceolate, acute, nearly equalling the corol; petals obovate, entire.

HAB. Fields and woods. Can. to Car. April, May. 2f.—Stem 3—8 inches high. Flowers yellow. Receptacle hairy.

Five-finger.

5. *P. simplex* Mich.: stem sarmentose, simple, hairy; leaves quinate, petioled; leaflets ovate-lanceolate, acutely toothed, a little hairy beneath; stipules lanceolate, entire; peduncles lateral, solitary, elongated, 1-flowered; lobes of the calyx lanceolate-linear, mucronate, a little shorter than the roundish obcordate petals.—*P. sarmentosa* Willd.
—*P. caroliniana* Poir.

HAB. Fields and woods. Can. to Car. May—Aug. ♀.—*Flowers* yellow. Is not this a mere variety of the last ?

6. *P. argentea* Linn. : stem ascending or erect, tomentose ; leaves quinate-palmate ; leaflets obovate-wedgeform, incised, revolute on the margin, white and tomentose beneath ; flowers numerous, corymbed ; lobes of the calyx lanceolate, shorter than the corol.

b. *dentata* De Cand. : leaflets subentire, 3—4 toothed at the apex, tomentose beneath.—*P. cinerea* Raf.

HAB. Fields. Can. and throughout the N. S. June—Sept. 2♂.
—*Stems* 4—10 inches long. *Leaves* green above. *Flowers* yellow.
Silvery Cinquefoil.

*** *Leaves pinnate.*

7. *P. fruticosa* Linn. : stem fruticose ; leaves pinnate, hirsute ; leaflets oblong-lanceolate, very entire, approximate ; stipules lanceolate, membranaceous, acute ; flowers in corymbs, large ; petals longer than the calyx.—*P. fruticosa* and *P. floribunda* Pursh.

HAB. Margins of swamps. N. S. N. to Arc. Amer. W. to Rocky mountains. June. ♀.—A shrub 2 feet high, much branched and hairy. *Flowers* large, yellow.—*P. floribunda* of Pursh, differs only in having the leaves and flowers more numerous.

8. *P. supina* Linn. : stem decumbent, herbaceous, dichotomous ; leaves pinnate ; leaflets obovate or oblong, somewhat glabrous, more or less toothed ; peduncles axillary, solitary, 1-flowered ; segments of the calyx triangular-lanceolate ; petals as long as the calyx.

HAB. Overflowed banks of streams. Can. and Penn. W. to Miss. June—Aug. ♂.—*Flowers* small, yellow.

9. *P. anserina* Linn. : stem filiform, rooting ; leaves interruptedly pinnate ; leaflets ovate-oblong, incisely and acutely serrate, smooth above, silky beneath ; stipules many-cleft ; peduncles as long as the leaves, axillary, solitary ; lobes of the calyx lanceolate, entire ; petals obovate, longer than the calyx.

HAB. Wet meadows. N. S. N. to Arc. Amer. June. 2♂.—*Stems* long, reddish. *Flowers* yellow, on long axillary peduncles.
Silver-weed. Wild Tansey.

10. *P. pennsylvanica* Linn. : whole plant white tomentose ; stem herbaceous erect ; leaves interruptedly pinnate ; cauline ones 3-lobed, lobes oblong-ovate, deeply dentate ; stipules lanceolate, somewhat laciniate ; flowers in corymbose panicles ; inner lobes of the calyx triangular-lanceolate, outer ones oblong-lanceolate, as long as the corol ; petals obcordate ; receptacle pilose ; carpels rugulous.—*P. arguta* Lehm. not of Pursh.

HAB. N. S. N. to Arctic Amer. June. 2♂.—*Stem* 1—2 feet high. *Flowers* pale yellow.

11. *P. arguta* Pursh : erect, simple, pubescent ; leaves pinnate ; leaflets ovate, sharply dentate, outer ones larger ; stipules rhomboidal,

incised; flowers terminal, in a crowded corymb.—*P. confertiflora* Torr. Fl. Lehm.—*P. pennsylvanica* Torr. in Ann. N. Y. Lyc. ii. 197.—*Geum agrimonoides* Pursh.—*Bootia sylvestris* Big.

HAB. N. S. N. to Arc. Amer. June, July. 2f.—Stems many, 3 feet high, erect, nearly simple, branched above and with the petioles, peduncles and calyx covered with a whitish and glandular pubescence. Leaves unequally pinnate, with the leaflets unequally and doubly serrate, and sometimes lobed. Flowers erect, at first in dense corymbs, at length paniculate. Calyx with the five alternate segments smaller. Petals pale yellow. Styles lanceolate, naked.—Richardson's Appendix to Franklin's Jour. p. 20.

12. *P. comarum* De Cand.: root creeping; stem ascending, leaves pinnate; upper ones ternate; leaflets lanceolate, acutely serrate; petals lanceolate, acuminate, much shorter than the calyx.—*P. palustre* Lehm. Torr.—*Comarum palustre* Linn.

HAB. In swamps. N. S. N. to Arctic America. June. 2f.—Stem 18 inches high. Flowers large, purple, on the upper part of the stem. Marsh Cinquefoil.

10. SIBBALDIA. Linn.

Calyx 10-cleft, with the alternate segments narrower. Petals minute. Stamens and carpels often 5. Styles 5, proceeding laterally from the germ. Seeds 5, clustered in the bottom of the calyx. Pentandria. Pentagynia.

S. procumbens Linn.: leaves ternate; leaflets ovate, tridentate, smooth above, hairy beneath; flowers corymbed; petals lanceolate, acute, about as long as the calyx.

HAB. High mountains. Can. and Ver. 7.—A small procumbent plant with the habit of *Potentilla tridentata*. Flowers yellow.

11. AGRIMONIA. Linn.

Calyx inferior, 5-cleft, with a lobed calicle at its base. Petals 5. Stamens 15. Acines 2, in the bottom of the calyx. Icosandria. Di-Pentagynia.

1. *A. eupatoria* Linn.: hairy; leaves interruptedly pinnate; leaflets oblong-ovate, crenate-dentate, the terminal one petioled; spike virgate, many-flowered, terminal, long and slender; tube of the calyx bell-shaped, with spreading bristles near the middle; petals twice as long as the calyx; fruit distant, turbinate, hispid, smooth at base.

HAB. Woods and hedges. Can. to Car. W. to Miss. July. 2f.—Stem 2 feet high. Flowers yellow, in a long terminal spike or raceme. Agrimony.

2. *A. parviflora* Ait.: somewhat hairy; leaves interruptedly pinnate; leaflets numerous, linear-lanceolate, incisely serrate; spike virgate; flowers on very short pedicels; petals once and a half the length of the calyx; fruit roundish, divaricately hispid.

HAB. Woods. Penn. to Virg. *Pursh*—Aug. 24.—*Flowers* small, yellow.—Perhaps a mere variety of the former.

12. ROSA. *Linn.*

Calyx urceolate, fleshy, contracted at the orifice, 5-cleft. *Petals* 5. *Stamens* numerous. *Carpels* numerous, bony, hispid, included in the fleshy tube of the calyx.

Icosandria. Polygynia.

* *Styles cohering in a column. Fruit ovate or subglobose.*

1. *R. rubifolia Brown*: stem ascending; branches glabrous; prickles few falcate; leaves ternate, ovate-lanceolate, serrate, pubescent beneath; stipules narrow, entire; peduncles and calyx hispid; flowers subsolitary; lobes of the calyx ovate, short, simple; styles cohering in a tomentose club-shaped column, as long as the stamens; fruit pisi-form.

HAB. Shores of the Western lakes. W. to Miss. July. ♀.—*Flowers* very numerous, changing white to different shades of red, sometimes in a corymb.

** *Styles free mostly included. Fruit globose or globose-depressed. Stipular prickles usually in pairs.*

2. *R. lucida Ehrh.*: prickles recurved or none; leaflets 5—9, lanceolate-elliptic, coriaceous, obtusely serrate, shining; stipules dilated, large, smooth, serrulate; peduncles somewhat hispid; segments of the calyx entire, appendaged, spreading but not deflexed; flowers mostly in pairs; fruit globose-depressed, hispid or smooth.

HAB. Mountain swamps. N. Y. to Car. July. ♀.—*Shrub* 3—4 feet high. *Flowers* large, red. *Petals* emarginate. *Fruit* red.
Swamp Rose.

3. *R. nitida Willd.*: arms crowded, slender subequal; leaflets 5—9, rigid, lanceolate, shining; stipules large, finely serrulate; lobes of the calyx spreading; fruit subglobose, shining, red.

HAB. In Penn. *Muhl.* ♀.—A low shrub.—Perhaps a variety of the former.

4. *R. parviflora Ehrh.*: prickles straight, horizontal, needle-shaped or none; leaflets 5—9, lanceolate, smooth, coarsely serrate, flaccid; stipules large, subdenticulate; fruit depressed-globose and with the peduncle of the calyx very long, appendaged.—*R. caroliniana Mich.*

HAB. In woods. N. Y. to Car. W. to Lake Superior. June, July. ♀.—*Shrub* 3 feet high. *Flowers* in pairs. *Petals* large, red, broadly obovate, emarginate.—There are a number of varieties of this species.

5. *R. carolina Linn.*: prickles recurved, often wanting; leaflets 5—9, coriaceous, lanceolate or obovate, serrulate, approximate, glaucous beneath; stipules long, with an involute margin; flowers mostly in

corymbs, rarely solitary; lobes of the calyx very long, appendaged, spreading; fruit depressed-globose, hispid, rarely smooth.—*R. corymbosa* Ehrh.—*R. pennsylvanica* Mich.—*R. florida* Don.

HAB. Swamps. Can. to Car. W. to Miss. June, July. $\frac{1}{2}$.—Shrub 3—8 feet high. Flowers 5—7 in terminal corymbs. Petals large, red, obovate, emarginate. Petioles tomentose.—A very variable species, including the above and some others which have been described as distinct species. A variety? of this species occurs on an Island near Troy, N. Y. with the stems uniformly and constantly smooth, except very near the root, where there are sometimes a few slender prickles. This, and a slight difference in the shape of the fruit, which is depressed-globose, led me to believe it a distinct species.

*** *Styles free. Fruit ovate, rarely globose. Prickles few, not stipular.*

6. *R. gemella* Willd.: stipular prickles uncinatè, in pairs; leaflets 5—7, oblong, acute, opaque, pubescent beneath; flowers mostly in pairs; fruit depressed-globose, and with the peduncles glabrous.

HAB. Dry hills. N. Eng. to Car. Pursh. July. $\frac{1}{2}$.—Shrub low, with large red flowers.—This species is considered by De Candolle a variety of the *R. cinnamomea*, differing from it only in being more slender and nearly unarmed, and in having the stipules narrower. But this, as well as several other points connected with our roses, must remain doubtful until they have been more attentively studied.

7. *R. stricta* Muhl.: very branching; branches with numerous slender prickles below, naked at the apex; leaflets 7—9, ovate, obtuse, somewhat rigid; peduncles hispid; fruit small, elongated.

HAB. N. Eng. and Penn.—De Candolle, from whom the above description and locality are quoted, thinks it may be a variety of *R. alpina*.

8. *R. rubiginosa* Linn.: prickles strong, compressed, uncinatè, rarely straight; leaflets 5—7, ovate or somewhat rounded, serrate, more or less, especially beneath glandular and ferruginous; fruit elliptical, short, and with the peduncles hispid.—*R. suaveolens* Pursh. Ell.

a. *pubera* De Cand.: flowers subsolitary; fruit ovate, smooth; peduncles glandular-hispid; leaflets roundish, glandular beneath, and with the petioles somewhat pubescent.—*R. micrantha* Smith. Big.

HAB. Hedges and hill sides. Can. to Car. July. $\frac{1}{2}$.—Shrub tall and slender. Flowers solitary, or 2 or 3 together, pale red. Fruit orange red.—A very variable species. Var. a. is found near Boston. Sweet-briar.

ORDER XXXVIII. POMACEÆ. Lind.

Calyx 5-toothed, the odd segment superior. *Petals* 5, unguiculate. *Stamens* indefinite. *Disk* thin, lining the tube of the calyx, bearing the petals and stamens on its margin. *Ova*—

ries 1—5, adhering to the side of the calyx; *ovules* ascending, 2, collateral, rarely solitary; *styles* 1—5; *stigmas* simple. *Fruit* an apple, 1—5-celled, or spuriously 10-celled; endocarp cartilaginous or bony. *Seeds* solitary, ascending; *albumen* none; *embryo* erect, with flat, rarely convolute *cotyledons*, and a short conical *radicle*.

Trees or *shrubs*. *Leaves* alternate, stipulate, simple or compound. *Flowers* in terminal cymes, white or pink.

1. CRATÆGUS. Linn.

Calyx with the *tube* urceolate, and the *limb* 5-cleft. *Petals* spreading, orbicular. *Stamens* many. *Ovary* 2—5-celled. *Styles* glabrous. *Pome* fleshy ovate, closed by the teeth of the calyx or incrassated disk. *Putamen* bony.

Icosandria. Di-Pentagynia.

* *Leaves* dentate or subentire, not lobed.

1. *C. crus-galli* Ait.: thorny; leaves obovate-wedgeform, subsessile, shining, coriaceous; corymbs compound; lobes of the calyx lanceolate, subserrate; flowers digynous; fruit small, mostly 1-seeded.—*C. lucida* Wagh. amer.

HAB. Borders of woods. Can. to Car. W. to Miss. May, June. ♀.—A shrub or small tree much branched and with long spines. *Flowers* white in a corymb. *Style* often solitary. *Fruit* red.—There are several varieties of this species.

2. *C. punctata* Jacq.: thorny or unarmed; leaves obovate-cuneate, smooth, somewhat plaited, serrate, tapering at base into a petiole; calyx villous; lobes subulate, very entire; fruit subglobose, with the summit depressed.

HAB. Woods and swamps. Can. to Car. May. ♀.—A small tree. *Leaves* sometimes hairy beneath. *Corymbs* many-flowered, pubescent. *Fruit* red and yellow.

Common Thorn-tree.

3. *C. elliptica* Ait.: thorny; leaves elliptical, unequally serrate, smooth; petioles and calyx glandular; fruit globose, 5-seeded.

HAB. Dry swamps. Can to Car. May. ♀.—*Calyx* with the segments obtuse. *Fruit* small, red. Pursh.

4. *C. parviflora* Ait.: thorny; leaves obovate-wedgeform, subsessile, incisely serrate, pubescent; flowers subsolitary, pentagynous; lobes of the calyx laciniate, villous; fruit subturbinate, with 5 bony 1-seeded nuts.—*C. tomentosa* Linn.—*Mespilus laciniata* Walt.

HAB. Sandy woods. N. J. to Car. June. ♀.—Shrub 4 feet high, with the younger branches and *leaves* tomentose. *Fruit* large yellow.

**** Leaves often incised or lobed.**

5. *C. pyrifolia* Ait. : thorny or unarmed; leaves ovate-elliptic, incisely serrate, somewhat plicate and hairy; calyx villous; segments linear-lanceolate, serrate; flowers trigynous.

HAB. Rocky woods. Penn. to Car. W. to Michigan. June.
 ♀.—Leaves large, acute or acuminate at each end. *Corymbs* many-flowered. *Peduncles* and *calyx* tomentose.

6. *C. glandulosa* Willd. : thorny; leaves obovate-wedgeform, smooth and shining; petioles, stipules and calyx glandular; fruit oval, 5-seeded.

HAB. Can. and Alleghany mountains. May. ♀.—Fruit middle sized, scarlet.

7. *C. coccinea* Linn. : thorny; leaves on long petioles, ovate, subcordate, incisely lobed and serrate; glabrous; petioles and calyx pubescent and glandular; flowers pentagynous; petals orbicular.

HAB. Woods. Can. to Car. May. ♀.—A large shrub. *Leaves* on long petioles, often subcordate. *Flowers* in *corymbs*, white. *Fruit* large, red, eatable. *Thorn-bush*.

8. *C. cordata* Ait. : thorny; leaves cordate-ovate, pinnatifid, lobed and angled, smooth; petioles and calyx without glands; flowers pentagynous; fruit small, globose, depressed.—*C. populifolia* Pursh.

HAB. Banks of streams. May, June. ♀.—A large shrub. *Leaves* with 3, 5 or 7 lobes. *Corymb* compound. *Fruit* red.

9. *C. oxycantha* Linn. : leaves obovate-wedgeform, nearly entire, trifid or laciniate, glabrous or shining; flowers in *corymbs*, 1—3 gynous; calyx without glands, acute.

HAB. Road sides, &c. N. S. June. ♀.—A shrub 8—10 feet high. *Flowers* white. *Fruit* red, small.—This thorn is preferred in England for hedging. Introduced. *Hawthorn*. *Quickset*.

2. AMELANCHIER. *De Cand.*

Calyx 5-cleft. *Petals* lanceolate. *Stamens* many, rather shorter than the calyx. *Ovary* with 10, or 5 bipartite, cells. *Styles* 5, somewhat united at base. *Fruit*, when mature, 3—5-celled.

1. *A. botryapium* *De Cand.* : unarmed; leaves cordate, oval, conspicuously acuminate, pubescent when young, smooth when mature; flowers in loose racemes, appearing before the leaves; calyx pubescent; petals linear-lanceolate.—*Aronia botryapium* Pers.—*Pyrus botryapium* Linn. Pursh.—*Mespilus canadensis* var. *cordata* Mich.

HAB. Rocky woods. Can. to Car. May. ♀.—A small tree. *Flowers* large, white. *Fruit* dark purple.

Service-berry. *Shad-bush*.

2. *A. ovalis* *De Cand.* : leaves roundish-elliptical, acute, smooth when mature; flowers in compact racemes; petals obovate; germs

and segments of the calyx pubescent ; fruit black.—*Aronia ovalis* Pers.

—*Pyrus ovalis* Linn. Pursh.—*Mespilus canadensis* var. *obovalis* Mich.

HAB. In swamps. Can. to Car. N. to lat. 62°. May. ♀.—A small shrub. Supposed by some botanists to be a mere variety of the former, but certainly distinct. The fruit is about the size of a pea and eatable.

3. *A. sanguinea* De Cand. : leaves oval, obtuse at each end, mucronate, with very slender serratures, subcordate at base ; racemes few-flowered ; calyx smooth ; petals linear-obtuse.—*Pyrus sanguinea* Pursh.
—*Aronia sanguinea* Nutt.

HAB. Can. and Mass. W. to Columbia river. Pursh. May. ♀.

—A small tree with blood red branches. Berries red, eatable. Pursh.

3. PYRUS. Linn. De Cand.

Calyx with the tube urceolate, and the limb 5-lobed. *Petals* roundish. *Styles* often 5, rarely 2—3. *Apple* closed, 5-celled, with a cartilaginous putamen. *Cells* 2-seeded. *Seeds* with a cartilaginous covering. *Icosandria*. *Di-Pentagynia*.

* *Petals* spreading, flat. *Styles* 5, nearly united at base. *Leaves* simple, without glands. MALUS.

1. *P. coronaria* Linn. : leaves broadly-oval, round at the base, somewhat angular, serrate, smooth ; corymbs terminal, few-flowered, on long peduncles ; flowers large ; fruit depressed.—*Malus coronaria* Mich.

HAB. In woods. N. J. to Geor. May. ♀.—A tree 15—20 feet high. *Flowers* large, fragrant, pale rose-colour.

2. *P. angustifolia* Ait. : leaves lanceolate-oblong, acute at base, slightly crenate-dentate, shining ; peduncles corymbose.—*Malus angustifolia* Mich.

HAB. Penn. May. ♀. Muhl.—A tree 15—20 feet high. *Leaves* and *fruit* smaller than in the preceding.

** *Styles* 2—5. *Leaves* pinnate. SORBUS.

3. *P. americana* De Cand. : leaves pinnate ; leaflets oblong-lanceolate, acuminate, somewhat equally serrate, and with the common petiole very smooth ; flowers in terminal corymbs.—*Sorbus americana* Pursh.

HAB. Mountains. Can and N. S. May. ♀.—A shrub or small tree with the younger branches pubescent. *Flowers* white. *Stamens* very numerous. *Styles* mostly 3. *Fruit* globose, fulvous, remaining on the tree all winter. Mountain Ash.

4. *P. microcarpa* De Cand. : leaves pinnate ; leaflets acuminate, acutely and incisely serrate, and with the common petiole smooth ; serratures setaceous mucronate.—*Sorbus microcarpa* Pursh.

HAB. High mountains. N. J. to Car. Pursh. May. ♀.—A large shrub, with the younger branches glossy. *Flowers* white. *Fruit* small, scarlet.

*** *Petals spreading, with claws. Styles 2—5. Leaves simple, glandular above near the rachis. ADENORACHIS.*

5. *P. arbutifolia* Linn. : leaves obovate-lanceolate, acute, crenately serrulate, tomentose beneath (especially the younger ones ;) midrib glandular above ; flowers in corymbs ; calyx tomentose.—*Aronia pyrifolia* Pers.—*A. arbutifolia* Ell. Nutt. Torr.

HAB. Low woods. Can. to Car. May, June. ½.—Shrub 2—5 feet high. *Flowers* reddish. *Fruit* about the size of a large wor-
tle-berry, scarlet.

6. *P. melanocarpa* Willd. : leaves obovate-oblong, acuminate, serrate, smooth beneath, midrib glandular ; flowers in terminal corymbs ; calyx smooth.—*Aronia arbutifolia* Pers.—*A. arbutifolia* var. *melanocarpa* Torr.

HAB.. Bogs. Can. to Car. May, June. ½.—A shrub about the size of the preceding and perhaps not distinct.

ORDER XXXIX. SANGUISORBEÆ. Lind.

Flowers often declinous. *Calyx* 3—4—5-lobed, with a thickened, afterwards indurated tube ; æstivation valvate. *Petals* none. *Stamens* definite, alternating with the lobes of the calyx, (though sometimes fewer than them by abortion,) rarely indefinite ; *anthers* erect, 2-celled and bursting longitudinally, or 1-celled and bursting transversely. *Ovary* solitary, simple, with a style proceeding from the apex or the base ; *ovule* solitary, attached to the ovary close to the base of the style ; *stigma* simple or compound. *Nut* solitary. *Seed* solitary, suspended or ascending ; *embryo* without albumen ; *radicle* superior ; *cotyledons* large, plano-convex.

Herbs or *under shrubs*. *Leaves* alternate, simple, lobed or compound, with stipules. *Flowers* small, often in heads.

1. ALCHEMILLA. Linn.

Calyx tubular ; *tube* somewhat contracted at the top ; *limb* 8-parted, the alternate lobes smaller. *Petals* none. *Stamens* 1—4. *Carpels* 1—2, with a filiform capitate style on the side, at length dry and 1-seeded. *Tetrandria. Monogynia.*

A. alpina Linn. : leaves digitate ; leaflets 5—7, lanceolate-cuneate, obtuse, serrate at the apex, white and silky beneath.

HAB. High mountains. N. Hamp. and Ver. June, July. 2f.—
Flowers white.

2. SANGUISORBA. Linn.

Flowers perfect. *Calyx* 4-cleft, with two scales at base externally. *Petals* none. *Stamens* 4. *Carpels* 2, included

within the calyx, crowned by a style with a fimbriate apex, converted into dry indehiscent 1-seeded acines.

Tetrandria. Monogynia.

1. *S. canadensis* Linn. : leaves pinnate ; leaflets ovate-oblong subcordate, coarsely serrate ; spikes cylindrical, very long ; stamens longer than the corol.

HAB. Wet meadows. Can. to Geor. Aug.—Oct. 2f.—*Stem* 2—4 feet high. *Flowers* white, in crowded spikes which are from 2—5 inches long. *Burnet Saxifrage.*

2. *S. media* Linn. : leaves pinnate and with the bracts smooth ; leaflets ovate, subcordate, toothed ; spikes ovate-cylindric ; stamens scarcely longer than the corol.

HAB. Wet meadows, principally on the mountains. Can. to Car. July, Aug. 2f.—The spikes shorter than in the former, and tinged with red. *Pursh.*

ORDER XL. CALYCANTHEÆ. *De Cand. Linn.*

Sepals and *petals* confounded, indefinite, imbricated, combined in a fleshy tube. *Stamens* indefinite, inserted into a fleshy rim at the mouth of the tube, the inner sterile. *Anthers* adnate, turned outwards. *Ovaries* several, simple, 1-celled, with one terminal style adhering to the inside of the tube of the calyx. *Nuts* enclosed in the fleshy tube of the calyx, 1-seeded, indehiscent. *Seed* ascending ; *albumen* none ; *cotyledons* convolute.

Shrubs with square stems. *Leaves* opposite, simple. *Flowers* axillary, solitary.

1. CALYCANTHUS. *Linn.*

Lobes of the *calyx* in many rows, imbricate, lanceolate, somewhat coriaceous, coloured. *Stamens* 12, unequal, deciduous ; outer ones fertile. *Acines* many.

Icosandria. Polygynia.

C. laxigatus Willd. : lobes of the calyx lanceolate ; leaves oblong or oval, gradually acuminate, somewhat rugose, smooth and green on both sides ; branches straight, erect.—*C. ferax* Mich.

HAB. Mountains. Penn. to Car. May—July. 7.—*Shrub* 4—6 feet high. *Leaves* opposite, entire. *Flowers* large, solitary, terminal. *Calyx* brownish-purple. *Carolina Allspice.*

ORDER XLI. ONAGRARIÆ. *De Cand. Lind.*

Calyx superior, tubular, with the limb usually 4-lobed ; the lobes cohering in various degrees, with a valvate æstivation.

Petals generally equal in number to the lobes of the calyx, into the throat of which they are inserted, regular, with a twisted æstivation. *Stamens* definite, inserted into the calyx; *filaments* distinct; *pollen* triangular, usually cohering by threads. *Ovary* of several cells, generally crowned by a disk; *style* filiform; *stigma* capitate or 4-lobed. *Fruit* a berry or capsule, many-seeded, 1—2—4-celled. *Seeds* numerous, without albumen; *embryo* straight; *radicle* long and taper; *cotyledons* very short.

Herbs or *shrubs*. *Leaves* simple, alternate or opposite. *Flowers* axillary or terminal, of various colours.

1. EPILOBIUM. - Linn.

Calyx 4-sepalled; *sepals* united into a long 4-sided tube; *limb* caducous. *Petals* 4. *Stamens* 8; *pollen* not viscous. *Capsule* linear, obtusely 4-sided, 4-celled, 4-valved, many-seeded, united with the calyx. *Seeds* crowned with pappus.

Octandria. Monogynia.

1. *E. spicatum* Lam.: stem tall, terete, smooth, branched above; leaves scattered, linear-lanceolate, veined, smooth; flowers large, pedicelled, in a terminal spike; petals irregular; stamens unequal, declined.—*E. angustifolium* Linn.

HAB. Swamps and moist woods. Can. and N. S. W. to Miss.
July. 2l.—Stem 3—5 feet high. *Flowers* purple, in a terminal leafless spike or raceme. *Willow Herb.*

2. *E. coloratum* Muhl.: stem terete, pubescent; leaves mostly opposite, lanceolate, serrulate, petiolate, smooth, with coloured veins; upper ones alternate; flowers small, axillary, near the extremity of the branches.

HAB. Wet meadows. N. S. July, Aug. 2l.—Stem 3—4 feet high. *Flowers* small.—A very variable plant.

3. *E. squamatum* Nutt.: pubescent; root squamous, bulbous; stem terete, branching above; stem leaves opposite; those of the branches linear and entire, revolute on the margin; flowers pedunculate; petals bifid; stamens unequal; stigma clavate, undivided.—*E. rosmarinifolium* Pursh. Torr.—*E. lineare* Muhl. Big.?

HAB. Moist woods, &c. N. S. Aug. 2l.—Stem a foot high, slender. *Flowers* small, terminal, white.—*E. rosmarinifolium* was a name applied by Hænke to a different species, which is recognized by De Candolle.

4. *E. palustre* Linn.: stem terete, branched, somewhat hirsute; leaves sessile, lanceolate, somewhat toothed, opposite and alternate, smooth; stigma undivided; fruit pubescent.

HAB. Low grounds. Penn. N. to Arc. Amer. Aug., Sept. 24.
—*Stem* 2—3 feet high. *Flowers* pale red.

5. *E. leptophyllum* Raf. : stem branching, somewhat scabrous ; leaves alternate, sessile, narrow-linear, entire, smooth, 1-nerved, acute, narrowed at base ; flowers axillary, solitary, pedunculate.

HAB. Moist woods. Penn. and Mar.—Raf. in *De Cand. Prod.*

6. *E. tetragonum* Linn. : stem 4-sided, nearly smooth ; leaves sessile, lanceolate-oblong, denticulate, lower ones opposite ; stigma undivided.

HAB. Low grounds. Can. to Car. July. 24.—*Stem* 2 feet high, branched, smooth. *Flowers* small, pale red, in terminal racemes.—Distinguished by its square stem.

7. *E. strictum* Muhl. : densely and softly pubescent ; stem terete ; leaves oblong-linear, sessile, very entire ; the lower ones opposite ; upper ones alternate ; flowers pedicellate, subterminal, regular ; petals 2-lobed ; stigma entire.—*E. molle* Torr.

HAB. Sand plains. N. Y. Aug. 24.—*Stem* 18 inches high, branched above and covered with a white pubescence. *Leaves* narrow, numerous. *Flowers* small, pale purple.—The name given to this species by Dr. Torrey is objectionable, having been previously appropriated to another species found on the continent of Europe. My specimens agree very well with Sprengel's description of *E. strictum* of Muhlenberg.

8. *E. alpinum* Linn. : stem simple, subterete, one or two flowered ; leaves opposite, elliptical, entire ; flowers sessile.

HAB. White mountains, N. H. N. to Arc. Amer.—Big. July. 24.—The smallest species,—not above two inches high. *Flowers* pale purple.

2. GAURA. Linn.

Calyx 3—4 sepalled ; *sepals* united into a long obovate tube ; limb caducous. *Corol* 3—4 petalled. *Stamens* 6—8. *Ovary* 3—4-sided, united to the base of the calyx. *Seeds* 1—4, not crowned with pappus. *Octandria. Monogynia.*

G. biennis Linn. : stem herbaceous erect, hairy, mostly purplish ; leaves alternate, sessile, lanceolate, toothed ; flowers numerous, sessile, in terminal spikes ; fruit roundish, slightly 4-angled, pubescent.

HAB. Banks of streams. N. Y. to Car. July, Aug. ♂.—*Stem* 2—3 feet high. *Flowers* dark rose-coloured, sessile, in terminal spikes.

3. CENOTHERA. Linn.

Calyx 4-sepalled ; *sepals* united into a long 4-sided or 8-ribbed tube ; limb and part of the tube caducous. *Petals* 4. *Stamens* 8, erect or declined ; *pollen* triangular, viscous. *Stigma* 4-cleft, or spherical. *Capsule* oblong-linear, obtusely

4-sided or obovate-clavate, 4-celled, 4-valved, many-seeded, united with the base of the calyx. *Octandria. Monogynia.*

* *Capsule elongated, 4-sided, sessile.*

1. *Æ. biennis* Linn.: stem villous and scabrous; leaves alternate, ovate-lanceolate, flat, toothed, very pubescent; lower ones on short petioles; upper sessile; flowers sessile, in a terminal spike; petals obcordate; stamens shorter than the corol.

HAB. Fields. Throughout the U. S. June—Sept. ♂ and ♀.
—Stem 3—5 feet high. Flowers yellow, large, in a terminal leafy spike. *Scabish-tree. Primrose.*

2. *Æ. muricata* Linn.: stem purplish, muricate; leaves lanceolate, flat; petals obcordate; stamens as long as the corol.

HAB. Old fields. N. Y. to Car. July, Aug. ♂.—Flowers yellow, smaller than in the preceding species.—According to De Candolle it resembles the next, but the margin of the capsule is not 8-cleft.

3. *Æ. parviflora* Linn.: stem smooth, subvillous; leaves ovate-lanceolate, flat; stamens longer than the corol; capsule crowned with an 8-cleft margin.

HAB. Fields and woods. Can. to Virg. rare. ♂.—*Pursh.*

4. *Æ. grandiflora* Ait.: stem nearly smooth, branched; leaves ovate-lanceolate, mostly smooth; flowers axillary, sessile, large; petals deeply obcordate; stamens declining, shorter than the corol.

HAB. Fields. Penn. to Car. July, Aug. ♂.—Stem 2—3 feet high. Flowers axillary, very large, bright yellow. Introduced.

5. *Æ. sinuata* Linn.: stem diffuse, pubescent; leaves oval-oblong, dentate-sinuate or incised; flowers solitary, axillary, sessile, villous; capsule prismatic.

b. *minima* Nutt.: stem low, simple 1-flowered; leaves entire.—*Æ. minima* Pursh.

HAB. Pine barrens. N. J. to Geor. W. to Miss. June. 2f.—Stem 1—6 inches high. Flowers small, terminal, yellow. Petals obcordate.

** *Capsules obovate-clavate, angular, mostly pedicellate.*

6. *Æ. fruticosa* Linn.: pubescent; stem branching from the base, divaricate; leaves sessile, lanceolate, slightly toothed, acute, pilose; flowers in a terminal raceme; petals broad-obcordate; capsule oblong-clavate, pedicellate, angled.

HAB. Shady woods. N. Y. to Geor. July. 2f.—Stem 12—18 inches high, purplish. Flowers pale yellow. Corol larger than the stamens. *Sun-drop. Shrubby Enothera.*

7. *Æ. ambigua* Spreng.: more or less pilose; stem simple; leaves lanceolate or ovate-lanceolate, acute, subdenticulate; petals obcordate, longer than broad; points of the calyx very short; capsule subsessile,

ways smooth, oblong and 4 winged; raceme naked below.—*Æ. fruticosa* var. *ambigua* Nutt.

HAB. Hills and dry woods. N. Y. Penn. Bart. July. 24.—
Stem a foot or more high, simple. Flowers pale yellow, smaller than in *Æ. fruticosa*.

8. *Æ. incana* Nutt.: stem slender, erect; leaves flat, hoary and tomentose, very entire, elliptic-ovate, acute; raceme few-flowered, naked; capsule subsessile, oblong and square.

HAB. Dry woods. N. Y. and Mar. Stem 6—8 inches high. Flowers bright yellow.—Dr. Torrey supposes it to be a variety of *Æ. fruticosa*.

9. *Æ. hybrida* Mich.: stem erect, villous; leaves pubescent on both sides, lanceolate, remotely toothed, undulate; capsules somewhat spiked, on short foot-stalks, ovate, 4-angled.

HAB. Old Fields. Penn.—Darlington. S. to Geor. July—Sept. 24.—Stem 9—18 inches high. Flowers pale yellow. Tube of the calyx 3 or 4 times as long as the segments.

10. *Æ. pumila* Linn.: stem weak, smooth or slightly hairy; leaves oblong-lanceolate, very entire, obtuse, flat; flowers small, in a terminal raceme; segments of the calyx longer than the tube; capsule subsessile, 8-angled.—*Æ. chrysantha* Mich.

HAB. Dry fields. N. S. to Car. July. 24.—Stem 8—12 inches high. Flowers small, bright yellow.

11. *Æ. pusilla* Mich.: subpubescent; stem nearly simple; leaves lanceolate-oblong, somewhat obtuse, entire; flowers axillary at the summit; capsule sessile, clavate-turbinate, almost equally 8-angled.

HAB. High mountains. Penn. to Virg.—Pursh. July, Aug. 24.—Stem 6—8 inches high, erect. Flowers small, yellow.

12. *Æ. chrysantha* Mich.: stem slender, minutely pubescent; leaves lanceolate, rather obtuse, flat, entire; segments of the calyx as long again as the tube; capsule clavate-sessile, acute, angled.

HAB. Mountains. Can. and N. S. July. 24.—Stem a foot high. Flowers small, bright yellow.—I am induced to believe that this is not distinct from the former, but that *Æ. chrysantha*, *Æ. pusilla* and *Æ. canadensis* of Goldie, are all mere varieties of the same species, probably *Æ. pumila* of Linnæus.

4. ISNARDIA. Linn.

Tube of the calyx ovate or subcylindric, short, adhering to the ovary; limb 4-parted, persistent. Petals sometimes 4, alternating with the calyx; sometimes none. Stamens 4. Style filiform, deciduous. Stigma capitate. Capsule obovate or nearly cylindrical, 4-sided, 4-valved, many-seeded.

Tetrandria. Monogynia.

* Petals 4. LUDWIGIA.

1. *I. alternifolia* De Cand.: stem erect, branched, nearly smooth; leaves alternate, lanceolate, somewhat scabrous on the margins and

under side; peduncles axillary, 1-flowered; capsules obovate-globose, 4-angled, winged; segments of the calyx large, ovate.—*Ludwigia alternifolia* Linn.—*L. macrocarpa* Mich.

HAB. Swamps. Can. to Flor. July. 2f.—Stem 2 to 3 feet high. Flowers yellow, on short peduncles.

2. *I. uniflora* Beck: stem straight, simple; leaves alternate, lanceolate, acute, smooth; flower terminal; petals longer than the calyx.—*Ludwigia uniflora* Raf. Torr.

HAB. N. Jersey.—This seems to be sufficiently distinct.—Dr. Torrey, however, suggests that it is a variety of the former.

3. *I. hirsuta* R. & S.: stem erect, sparingly branched, hairy; leaves alternate, oblong, sessile, somewhat hirsute; peduncles 1-flowered, axillary; capsules globose, 4-angled, winged, hairy.—*Ludwigia pilosa* Walt.—*L. hirsuta* Lam.

HAB. Ditches and pools. July, Aug. 2f.—Stem 2 feet high. Flowers yellow, axillary.

** Petals none. ISNARDIA.

4. *I. palustris* Linn.: stem prostrate, creeping, glabrous; leaves opposite, ovate-lanceolate, tapering at base, petioled, smooth; flowers axillary, solitary, sessile; capsule subovate, slightly angled.—*Ludwigia nitida* Mich. Pursh.—*L. palustris* Ell.—*L. apetal*a Walt.

HAB. Stagnant waters. Throughout the U. S. June. 2f.—Stem succulent. Flowers solitary, axillary, sessile. Corol none.

ORDER XLII. CIRCÆACEÆ. Lind.

Calyx superior, deciduous, tubular, with a two parted limb. *Petals* 2, alternate with the lobes of the calyx. *Stamens* 2, alternate with the petals, inserted into the calyx. *Disk* large, cup-shaped, filling up the whole of the tube of the calyx and projecting beyond it. *Ovary* 2-celled; *style* simple; *stigma* emarginate. *Fruit* 2-celled, 2-valved, 2-seeded. *Seed* solitary, erect; *albumen* none; *embryo* erect; *radicle* short.

Herbs with opposite toothed and petioled leaves. *Flowers* in terminal and lateral racemes, covered with uncinat hairs.

1. CIRCÆA. Linn.

Calyx short; *limb* bipartite. *Petals* 2, obcordate. *Stamens* 2, alternating with the petals. *Stigma* emarginate. *Capsule* ovate, hispid, with uncinat hairs, 2-celled, 2-valved, 2-seeded. *Diandria. Monogynia.*

1. *C. lutetiana* var. *canadensis* Linn.: stem erect; leaves petioled, ovate, remotely toothed, opaque, nearly smooth.—*C. canadensis* Muhl.—*C. lutetiana* Big.

HAB. Moist woods. Can. to Car. July, Aug. 2 $\frac{1}{2}$.—*Stem* a foot and a half high, smooth, simple. *Flowers* in long terminal racemes, reddish-white. *Enchanter's Nightshade.*

2. *C. alpina* Linn. : stem branched, very smooth, often procumbent ; leaves broad-cordate, membranaceous, acutely toothed, shining.

HAB. Moist shady places on mountains. Can. to Car. July. 2 $\frac{1}{2}$.—*Stem* 6—8 inches high, somewhat diaphanous. *Leaves* very thin and delicate. *Raceme* filiform.—Many botanists consider this a mere variety of the preceding.

ORDER XLIII. HALORAGEÆ. *De Cand. Lind.*

Calyx superior, with a minute limb. *Petals* minute, inserted into the summit of the calyx, or wanting. *Stamens* inserted into the same place, mostly equal in number to the petals. *Ovary* adhering inseparably to the calyx, with one or more cells ; *styles* none ; *stigmas* equal in number to the cells. *Fruit* dry, indehiscent, membranous or bony, with 1 or more cells. *Seeds* solitary ; *albumen* fleshy ; *embryo* straight, in the axis ; *radicle* superior.

Herbs, growing in wet places, with alternate, opposite or whorled *leaves*. *Flowers* sessile, occasionally monoecious or dioecious.

1. PROSERPINACA. Linn.

Tube of the *calyx* adhering to the triquetrous ovary ; limb 3-parted. *Petals* none. *Stamens* 3. *Stigmas* 3, sessile upon the top of the ovary. *Carpels* 3, indehiscent, dry, con- creted into a 3-sided fruit. *Triandria. Trigynia.*

1. *P. palustris* Linn. : upper leaves linear-lanceolate, serrate ; lower ones often pinnatifid ; fruit angular, acute.—*P. palustris* var. *a. Mich.*

HAB. Wet places. Can. to Car. July, Aug. 2 $\frac{1}{2}$.—*Stem* pro- cumbent. *Leaves* alternate, sessile. *Flowers* axillary, nearly sessile. *Mermaid Weed.*

2. *P. pectinata* Lam. : leaves all pinnatifid-pectinate ; nut large, angular, obtuse.—*P. palustris* var. *b. Mich.*

HAB. Wet grounds. N. J. to Geor. Aug. 2 $\frac{1}{2}$.—Distinguished from the former, by having the leaves all finely pectinate and the fruit with rather obtuse angles.

2. MYRIOPHYLLUM. Linn.

Flowers monoecious or rarely perfect. **STERILE FL.** *Ca- lyx* 4-parted. *Petals* 4-lobed, alternating with the calyx, ovate, caducous. *Stamens* 4—6—8. **PERFECT FL.** *Calyx*

adhering to the ovary ; limb 4-lobed. *Petals* none. *Nuts* 4, compressed or subglobose, 1-seeded.

Monoecia. Polyandria.

* *Flowers octandrous.*

1. *M. spicatum* Linn. : leaves verticillate, pinnately divided ; lobes capillary ; spike terminal, nearly naked ; floral leaves shorter than the flower ; lower ones subserrate and mostly very entire.

HAB. In water. Can. and N. S. Aug., Sept. 2f.—*Stem* slender, branched. *Leaves* in whorls, by fours, pectinate.

Water Milfoil.

2. *M. verticillatum* Linn. : leaves verticillate, pinnately divided ; lobes capillary, opposite ; spike terminal, leafy ; floral leaves all pinnately divided, much longer than the flowers, and scarcely distinct from the leaves.

HAB. In water. Can. to Car. July. 2f.—Upper flowers sometimes perfect.

** *Flowers hexandrous.*

3. *M. heterophyllum* Mich. : leaves verticillate, pinnately divided into capillary lobes ; spike terminal, nearly naked ; floral leaves opposite, ovate, acute, coarsely serrate, longer than the flowers.—*Potamogeton verticillatum* Walt.

HAB. In water. N. S. to Geor. July. 2f.—*Stem* simple. *Flowers* purple.

*** *Flowers tetrandrous.*

4. *M. capillaceum* Torr. : leaves all capillary-pinnate ; flowers axillary, opposite and alternate, tetrandrous, mostly perfect ; fruit quadrangular, formed of 4 cylindrical seeds.

HAB. Ponds. July, Aug. 2f.—Floating-stem branched, dichotomous. *Leaves* hair-like.

5. *M. ambiguum* Nutt. : leaves petiolate, pinnate, the lowest ones capillary ; emerging ones pectinate ; uppermost nearly entire, subserrate ; anthers partly oblong ; fruit quadrangular.

b. limosum Nutt. : stem rooting, erect ; leaves rigid, partly entire, or divided above, mostly trifid ; segments setaceous and acute. —*Purshia humilis* Raf. ?

HAB. Ponds. N. J. July. 2f.—Floating in extensive masses. *Stem* dichotomous. *Leaves* attenuated so as to appear petioled, pectinately pinnatifid. *Flowers* axillary, solitary, sessile.—var. *b.* Miry shores of the Delaware, N. J. *Stem* erect, 2—4 inches high, decumbent and rooting. *Leaves* rigid and spreading, very narrow, setaceous and acute. *Flowers* as in the preceding, but the anthers are roundish.

6. *M. tenellum* Big. : stem simple, nearly leafless, erect, somewhat rooting at base ; leaves in form of scales, alternate, entire ; upper ones bearing flowers in the axils ; spike terminal, interrupted ; flowers alternate.

HAB. Ponds. Mass. July. 2f.—*Stem* 4—12 inches high. *Flowers* alternate, sessile. *Petals* white, 3 times as long as the calyx.

7. *M. procumbens* Big. : stem procumbent, round, rooting, branched ; leaves pinnatifid with five or six narrow segments ; flowers axillary, solitary, sessile.

HAB. Ponds. Danvers, Mass.—Resembles *M. scabratum* of Michaux.

3. CALLITRICHE. Linn.

Flowers perfect or imperfect. *Bracts* 2, opposite, petaloid. *Calyx* (corol of authors) inconspicuous. *Petals* none. STERILE FL. *Stamen* 1, (rarely 2) with the filament filiform and exerted ; *anthers* reniform. FERTILE FL. *Styles* 2, filiform, glandular. *Capsule* compressed, 2-celled, 4-seeded.

Monandria. Digynia.

1. *C. verna* var. *intermedia* Willd. : upper leaves spatulate-obovate, lower ones linear, obtuse and emarginate ; flowers polygamous ; margins of the capsule obtuse.—*C. heterophylla* Pursh.—*C. verna* Mich.—*C. aquatica* Big.

HAB. In shallow streams. Throughout the U. S. May—Aug. ☉.—*Stem* floating, sometimes 2 or 3 feet long. Uppermost leaves crowded into a stellated tuft, and 3-nerved. *Flowers* solitary, axillary, white.

2. *C. autumnalis* Linn. : leaves all linear, 1-nerved, truncate or emarginate ; capsule with acute margins ; flowers perfect.—*C. linearis* Pursh.

HAB. Ponds, &c. N. S. May. ☉.—Scarcely differing from the former, except in having the leaves more generally linear.

3. *C. terrestris* Raf. : procumbent, diffused ; leaves oblong, uniform, rather obtuse ; capsule grooved on the margin.—*C. brevifolia* Pursh.

HAB. Swamps, &c. N. Y. to Virg. June—Aug. ☉.—*Stem* creeping. *Leaves* crowded, short obtuse. *Flowers* polygamous.

4. HIPPURIS. Linn.

Tube of the calyx adnate to the ovary ; limb minute, entire. *Petals* none. *Stamen* 1, inserted into the margin of the calyx. *Style* filiform, received into a groove of the anther. *Nut* 1-seeded, crowned with the margined limb of the calyx.

Monandria. Monogynia.

H. vulgaris Linn. : leaves whorled, linear, acute.

HAB. Ponds and lakes. N. Y. and Penn. Aug. 2f.—*Stem* 12—18 inches high, simple, erect. *Leaves* linear, mostly in whorls of eight. *Flowers* at the base of the upper whorls, one to each leaf, sessile, minute. *Mare's Tail.*

ORDER XLIV. PODOSTEMEÆ. *Lind.*

Flowers naked, monoclinal, bursting through an irregularly lacerated spathe. *Stamens* hypogynous, varying from 2 to an indefinite number, monadelphous, alternately sterile and shorter. *Ovary*, free, spuriously 2-celled; *ovules* numerous; *styles* two or none; *stigmas* 2 or 3. *Fruit* slightly pedicellate, capsular, opening by two valves, which fall off from the dissepiment which is parallel with them. *Seeds* numerous, minute, their structure unknown, or according to Von Martius, entirely simple.

Herbs with floating stems. *Leaves* capillary or linear, or irregularly lacerated, or minute and imbricated. *Flowers* minute.

1. PODOSTEMUM. *Mich.*

Monoecious. *Calyx* and *corol* none. *Stamens* 2, affixed to a common pedicel. *Germ* ovate. *Stigma* 1, sessile. *Capsule* 2-celled, 2-valved, many-seeded. *Seeds* minute.

Monoecia. Diandria.

P. ceratophyllum Mich.

HAB. Rocks in streams. Del. to Car. July. 24.—*Stem* filiform, floating. *Leaves* pinnate. *Flowers* axillary.

ORDER XLV. CERATOPHYLLÆ. *De Cand. Lind.*

Flowers monoecious. *Calyx* inferior, many-parted. *Stamens* 12—20; *filaments* wanting; *anthers* 2-celled. *Ovary* superior, 1-celled; *ovule* solitary, pendulous; *stigma* filiform, oblique, sessile. *Nut* 1-celled, 1-seeded, indehiscent, terminated by the hardened stigma. *Seed* pendulous, solitary; *albumen* none; *embryo* with 4 cotyledons, alternately smaller; *phlanula* many-leaved; *radicle* superior.

Floating *herbs* with multifid cellular leaves.

1. CERATOPHYLLUM. *Linn.*

Monoecious. *Calyx* many-parted. STERILE FL. *Corol* none. *Stamens* 16—20; *anthers* tricuspidate. FERTILE FL. *Corol* none. *Style* 1, filiform. *Nut* 1-seeded.

Monoecia. Polyandria.

C. demersum Linn.: fruit armed with 3 spines.

HAB. Under water. N. Y. to Virg. July. 24.—*Stem* long, slender. *Leaves* verticillate, in eights. *Flowers* axillary, solitary, very minute. *Hornwort*,

ORDER XLVI. SALICARIÆ. Lind.

Calyx with one sepal, the lobes with a valvate or separate æstivation. *Petals* inserted between the lobes of the calyx, very deciduous, sometimes wanting. *Stamens* inserted into the tube of the calyx below the petals, to which they are sometimes equal in number; sometimes twice, thrice or four times the number; seldom four; *anthers* adnate, 2 celled; *ovary* superior, 2—4-celled; *style* filiform; *stigma* usually capitate. *Capsule* membranous, covered by the calyx, usually 1-celled. *Seeds* numerous, small, without *albumen*; *embryo* straight; *radicle* turned towards the hilum. *Cotyledons* flat and leafy.

Herbs rarely *shrubs*. *Leaves* opposite, seldom alternate, entire. *Flowers* axillary or in terminal spikes or racemes.

1. AMMANNIA. Linn.

Calyx campanulate, 8-toothed. *Petals* 4, or none. *Stamens* 4. *Capsule* 4-celled, many-seeded, 1-celled.

Tetrandria. Monogynia.

1. *A. ramosior* Linn.: stem erect, somewhat 4-sided; leaves linear-lanceolate, dilated at the base; flowers axillary, sessile; the lower ones compactly whorled; the upper ones solitary; petals 4, obovate-roundish; stamens 4.

HAB. Salt meadows. N. J. to Car. Aug., Sept. ☉.—*Stem* 4—8 inches high; sometimes much higher. *Flowers* purple, minute.

2. *A. humilis* Mich.: stem procumbent at the base, square, somewhat branched; leaves narrow-lanceolate, tapering at base; flowers sessile, solitary, axillary; petals 4, orbiculate; stamens 4.—*A. ramosior* Walt.

HAB. Damp grounds. N. Y. to Car. Aug. ☉.—*Stem* 4—8 inches high, much more slender than in the former. *Flowers* small, blue.

2. LYTHRUM. Linn.

Calyx cylindric, striate, 8—12 toothed. *Petals* 4—6, inserted into the calyx. *Stamens* as many or twice as many as the petals, sometimes fewer. *Style* filiform. *Stigma* capitate. *Capsule* oblong, 2-celled, many seeded.

Icosandria. Monogynia.

1. *L. salicaria* var. *pubescens* Pursh : pubescent ; leaves opposite and ternate, sessile, lanceolate, cordate at the base ; flowers with 12 stamens, terminal, verticillate-spiked ; capsule oblong.

HAB. Wet meadows. Can. and N. S. July, Aug. 2f.—Stem 2 feet high. Flowers purple, very showy.—Pursh. *Purple Loosestrife*.

2. *L. hyssopifolia* Linn. : stem sparingly branched, square ; leaves alternate and opposite, linear-lanceolate, somewhat obtuse ; flowers axillary, subsessile, shorter than the leaves ; bracts acute, small ; petals 4—6, oblong ; stamens 5—8.

HAB. Low grounds. N. Y. Nutt. 2f.—Stem 12—18 inches high. Flowers pale purple. I have a specimen from Connecticut which agrees exactly with Elliott's *L. lanceolatum* the *L. virgatum* of Walter, and I am inclined to believe that these two plants have been confounded.

3. CUPHEA, Jacq.

Calyx tubular, ventricose, 6—12 toothed, unequal. *Petals* 6—7, unequal. *Stamens* 11—14, rarely 6—7, unequal. *Style* filiform. *Stigma* simple or sub-bifid. *Capsule* membranaceous, 1—2-celled, at length bursting longitudinally.

Icosandria. Monogynia.

C. viscosissima Jacq. : viscous ; leaves opposite, petioled, ovate-oblong, a little rough ; flowers lateral, solitary, on short peduncles ; calyx 6-toothed ; petals 6 ; stamens 12.

HAB. Mountains. N. Y. to Geor. W. to Ken. Sept. ☉.—Stem 12—18 inches high, erect, branching. Flowers purple.—Dr. Matthew Stevenson has found this plant on the wet grounds near Cambridge, N. Y.

4. DECODON. Gmel. De Cand.

Calyx hemispheric-campanulate, 10-toothed, 5 teeth longer and spreading. *Petals* 5, undulate. *Stamens* 10, 5 very long. *Capsule* covered with the calyx, 3-celled, 3-valved. *Seeds* minute, apterous.

Icosandria. Monogynia.

D. verticillatum Ell.—*Lythrum verticillatum* Linn.

HAB. Swamps. Can. to Flor. Aug. 2f.—Stem 2—3 feet high, erect, pubescent. Leaves opposite and alternate, sometimes by threes, lanceolate, petiolate. Flowers axillary, whorled. Petals undulate, purple. Fruit subglobose. *Swamp Willow-herb*.

ORDER XLVII. MELASTOMACEÆ. De Cand. Lind.

Calyx with 4 or 5 teeth or divisions, which are more or less deep, or are sometimes united and separate from the tube like a lid. *Petals* equal to the segments of the calyx, perigynous.

Stamens usually twice as many as the petals, sometimes equal to them in number; *anthers* long, 2-celled. *Ovary* more or less coherent with the calyx, with several cells, and indefinite ovules; *style* 1; *stigma* simple, either capitate or minute. *Pericarp* either dry or distinct from the calyx, or succulent and combined with it, with several cells. *Seeds* innumerable, minute, without albumen; *embryo* straight or curved, with equal or unequal *cotyledons*.

Herbs, trees or shrubs. *Leaves* opposite, undivided, usually entire, with several ribs.

1. RHEXIA. *Brown.*

Calyx with the tube ventricose-ovate at base, narrowed at the apex; the limb 4-cleft. *Petals* 4, obovate. *Anthers* 8, attached to the filaments behind, naked at base. *Capsule* free in the calyx, 4-celled. *Receptacle* lanceolate, pedicellate. *Seeds* cochleate. *Octandria. Monogynia.*

1. *R. mariana* Linn.: very hairy; leaves lanceolate, acute at each end, 3-nerved, subpetiolate; calyx tubular, nearly smooth.

HAB. Bogs. N. J. to Car. July, Aug. 2f.—*Stem* 1—2 feet high. *Leaves* sometimes ovate-lanceolate, serrate, ciliate. *Petals* obovate, hairy on the outer surface, purple.

2. *R. ciliosa* Mich.: stem nearly square, smooth; leaves subpetiolate, oval, serrulate, ciliate, 3-nerved, smooth beneath, slightly hispid above; flowers with an involucre.—*R. petiolata* Walt.

HAB. Del. to Car. July. 2f.—*Stem* 12—18 inches high. *Flowers* in a loose dichotomous panicle, purple, with an involucre of leaves at the base of each.

3. *R. virginica* Linn.: stem with winged angles, somewhat hairy, square; leaves sessile, ovate-lanceolate, ciliate, serrate, 3—7 nerved, sprinkled with hairs on both sides; corymbs dichotomous.

HAB. Wet meadows. N. Y. to Car. July. 2f.—*Stem* a foot high. *Flowers* large, purple. *Deer Grass.*

ORDER XLVIII. CUCURBITACEÆ. *De Cand. Lind.*

Flowers usually declinous, sometimes monoclinal. *Calyx* 5-toothed, sometimes obsolete. *Corol* 5-parted, scarcely distinguishable from the calyx, very cellular, with strongly marked reticulated veins, sometimes fringed. *Stamens* 5, either distinct, or cohering in 3 parcels; *anthers* 2-celled, very long and sinuous. *Ovary* inferior, 1-celled, with 3 parietal placentæ; *style* short; *stigmas* very thick, velvety or

fringed. *Fruit* fleshy, more or less succulent, (a pepo.) *Seeds* flat, ovate, enveloped in an arillus, which is either juicy or dry and membranous; *embryo* flat, with no *albumen*; *cotyledons* foliaceous, veined; *radicle* next the hilum.

Stem succulent, climbing by means of tendrils formed by abortive leaves. *Leaves* palmated, or with palmate ribs.

1. SICYOS. Linn.

Flowers monoecious. **STERILE FL.** *Calyx* 5-toothed; *teeth* subulate. *Corol* 5-parted. *Filaments* 3? (or rather 5, in 3 sets.) **FERTILE FL.** *Style* trifid. *Stigma* somewhat thick, trifid. *Fruit* 1-seeded, often spiny.

Monoecia. Monadelphica.

S. angulatus Linn.: leaves cordate, 5-angled, toothed, scabrous; lobes acuminate; tendrils umbellate; sterile flowers corymbose-capitate, with the common peduncle long; fertile ones sessile.

HAB. Banks of streams. Can. to Car. June. ☉.—A small procumbent vine. *Flowers* whitish with green. *Fruit* small, ovate, hispid. *Single-seeded Cucumber.*

2. MOMORDICA. Linn.

Flowers monoecious. **STERILE FL.** *Calyx* 5-cleft; *tube* very short. *Corol* 5-parted. *Stamens* in 3 sets; *anthers* connate. **FERTILE FL.** *Style* 3-cleft. *Ovary* 3-celled. *Fruit* often muricate, bursting elastically when mature.

Monoecia. Monadelphica.

M. ? echinata Muhl.: leaves cordate, angularly 5-lobed; lobes acuminate, very entire, glabrous, tendrils many-cleft; fruit roundish, setaceous-echinate, 4-seeded.—*Sicyos lobata* Mich.

HAB. Banks of streams. Penn. W. to Michigan. Aug. ☉.
—Plant climbing. *Fruit* 1—2 inches long. *Balsam Apple.*

3. MELOTHRIA. Linn.

Monoecious. **STERILE FL.** *Calyx* 3—5 toothed. *Corol* campanulate. *Filaments* 5, in three sets. **FERTILE FL.** *Calyx* and *corol* as in the sterile. *Style* 1. *Stigmas* 3, firm-briate. *Fruit* 3-celled, many-seeded.

Monoecia. Monadelphica.

M. pendula Linn.: leaves somewhat reniform, lobed and angled, slightly hispid; fruit oval, smooth, pendulous.

HAB. Banks of streams. Penn. to Car. June. ☉.—A slender vine running over small shrubs and herbs. *Stem* hairy. *Leaves* on petioles. *Tendrils* 5—6 inches long. *Flowers* axillary, yellow, the sterile in small racemes, the fertile solitary.

Small Creeping Cucumber.

ORDER XLIX. PASSIFLOREÆ. *De Cand. Lind.*

Sepals 5, sometimes irregular, combined in a tube of variable length, the sides and throat of which are lined by filamentous or annular processes, apparently metamorphosed petals. *Petals* 5, arising from the throat of the calyx, on the outside of the filamentous processes, occasionally wanting, sometimes irregular, imbricated in æstivation. *Stamens* 5, monadelphous, rarely indefinite, surrounding the stalk of the ovarium; *anthers* turned outwards, linear, 2-celled, bursting longitudinally. *Ovary* seated on a long stalk, superior, 1-celled; *styles* 3, arising from the same point, clavate; *stigmas* dilated. *Fruit* surrounded by the calyx, stalked, 1-celled, with 3 parietal polyspermous placentæ, sometimes 3-valved. *Seeds* attached in several rows to the placenta, with a bristle sculptured testa surrounded by a pulpy arillus; *embryo* straight, in the midst of fleshy thin albumen; *radicle* turned towards the hilum; *cotyledons* flat, leafy.

Herbs or *shrubs* usually climbing. *Leaves* alternate, with leafy stipules.

1. PASSIFLORA. *Juss.*

Calyx 5-parted, coloured, with the tube very short. *Petals* 5, or none, inserted into the calyx. *Stamens* 5, monadelphous. *Crown* of many filiform rays. *Berry* often pulpy, rarely submembranaceous, pedicelled. *Monadelphia. Pentandria.*

1. *P. lutea* Linn.: leaves cordate, 3-lobed, obtuse, nearly smooth; petioles without glands; peduncles axillary, in pairs; petals much longer than the calyx.

HAB. Banks of streams. Penn. to Flor. June—Aug. 2f.—

Stem climbing, slender. *Flowers* small, greenish-yellow.

Yellow Passion-flower.

2. *P. incarnata* Linn.: leaves smooth, subcuneate at base, 5-nerved, deeply 3-cleft; lobes oblong, acute; petioles with 2 glands; involucre 3-leaved; leaflets lanceolate, glandular-serrate; ovary villose.

HAB. Banks of streams. Del. to Flor. Sept. 2f.—*Stem* long, climbing. *Petals* white. *Nectary* purple, longer than the corol.

Fruit subacid and spongy, eatable.

ORDER L. PORTULACEÆ. *De Cand. Lind.*

Sepals 2, seldom 3 or 5, cohering by the base. *Petals* generally 5, occasionally 3, 4, or 6, either distinct, or cohering in a short tube, sometimes wanting. *Stamens* inserted along

with the petals irregularly into the base of the calyx, variable in number, all fertile, sometimes opposite the petals; *filaments* distinct; *anthers* versatile, with 2-cells, opening lengthwise. *Ovary* superior, 1-celled; *style* single, or none; *stigmas* several, much divided. *Capsule* 1-celled, dehiscing either transversely or by 3 valves, occasionally 1-seeded and indehiscent. *Seeds* numerous, if the fruit is dehiscent; attached to a central placenta; *albumen* farinaceous; *embryo* curved round the circumference of the albumen, with a long radicle.

Succulent *shrubs* or *herbs*. *Leaves* alternate, seldom opposite, entire, without stipules, or sometimes with membranaceous ones on each side at the base.

1. PORTULACCA. Linn.

Calyx inferior, 2-parted. *Petals* 4—6, equal, inserted into the calyx. *Stamens* 8—15. *Style* 1, 3—6-cleft at the apex, or *style* none, and *stigmas* 3—8-elongated. *Capsule* subglobose, 1-celled, many-seeded, opening circularly.

Polyandria. Monogynia.

P. oleracea Linn. : leaves cuneiform, fleshy, smooth; axils geniculate, naked; flowers sessile.

HAB. Near gardens, &c. N. S. May—Aug. ☉.—*Stem* spreading, succulent. *Flowers* yellow. Introduced. According to Mr. Nuttall it is indigenous on the plains of the Missouri.

Purslane.

2. TALINUM. Sims.

Calyx of 2 ovate deciduous sepals. *Petals* 5, distinct, or somewhat concreted at base. *Stamens* 10—20. *Style* filiform, cleft at the apex. *Capsule* 1-celled, 3-valved, many-seeded.

Polyandria. Monogynia.

T. teretifolium Pursh. : leaves terete, subulate, fleshy; cyme terminal, dichotomous corymbose; flowers pedunculate, polyandrous.

HAB. Rocks. Penn. to Virg. July—Sept. 24.—*Root* of a firm and fleshy consistence. *Stem* 4—10 inches high. *Leaves* crowded, cylindrical, incurved, 1—2 inches long. *Flowers* reddish-purple.—A figure and detailed description of this handsome little plant are given by Dr. Darlington in his *Florula Cestrica*.

3. CLAYTONIA. Linn.

Calyx of 2 ovate or roundish persistent sepals. *Petals* 5, obcordate or obovate, unguiculate. *Stamens* 5, inserted into the claws of the petals. *Ovary* sessile. *Style* 3-cleft. *Capsule* 1-celled, 3-valved, 3—5-seeded.

Pentandria. Monogynia,

C. virginica Linn. : leaves about 2, opposite, linear-lanceolate, thick ; flowers in a loose simple raceme ; sepals somewhat acute.

b. latifolia Torr. leaves ovate-lanceolate ; sepals obtuse.—*C. spathulifolia* Nutt. ?

HAB. Wet meadows. N. Y. to Car. W. to Miss. April, May. 2f.—Stem 6—10 inches high, erect or procumbent. Flowers rose-red, in a raceme. Varies much in the form of the leaves. Var. *b.* often supersedes the common variety. *Spring Beauty.*

ORDER LI. ILLECEBREÆ. Lind.

Sepals 5, seldom 3 or 4, distinct or more or less cohering. *Petals* minute, inserted upon the calyx between the lobes, occasionally wanting. *Stamens* perigynous, exactly opposite the sepals, if equal to them in number, sometimes fewer by abortion ; *filaments* distinct ; *anthers* 2-celled. *Ovary* superior ; *styles* 2 or 3, distinct or partially combined. *Fruit* small, dry, 1-celled, either indehiscent, or opening with 3-valves. *Seeds* either numerous, upon a free central placenta, or solitary and pendulous from a funiculus originating in the base of the cavity of the fruit ; *albumen* farinaceous ; *embryo* lying on one side of the albumen, more or less curved, with the *radicle* always pointing to the hilum ; *cotyledons* small.

Herbs or *half shrubby* plants. *Leaves* opposite or alternate, entire, with scarious stipules.

1. ANYCHIA. Mich.

Calyx 5-parted ; *sepals* connivent, subsaccate, callous at the apex. *Petals* none. *Stamens* 3—5 ; *filaments* distinct. *Style* none. *Stigmas* 2, subcapitate. *Capsules* indehiscent, 1-seeded, surrounded by the calyx.

Pentandria. Monogynia.

1. *A. dichotoma* Mich. : stem erect or spreading, dichotomously branched, pubescent ; leaves opposite, lanceolate, smooth, acute ; flowers solitary, terminal and axillary, very minute, on very short pedicels, about as long as the stipules.—*A. canadensis* Ell.—*Queria canadensis* Linn.

HAB. Dry soils. N. Y. to Car. July, Aug. ☉.—Stem 6—12 inches high, very pubescent. Flowers solitary, terminal, very minute. *Forked Chickweed.*

2. *A. capillacea* De Cand. : stem very smooth and slender ; leaves ovate ; stipules shorter than the flowers ; flowers remote.—*A. dichotoma* *b.* Torr.—*Queria capillacea* Nutt.

HAB. Pine barrens. N. J. Aug. ☉.—Probably only a variety of the former.

ORDER LII. SCLERANTHÆ. *Lind.*

Flowers monoclinal. *Calyx* 4 or 5-toothed, with an urceolate tube. *Stamens* 1—10, inserted into the orifice of the tube. *Ovary* simple, superior, 1-seeded. *Styles* 1 or 2, emarginate at the apex. *Fruit* a membranous utricle, enclosed within the hardened calyx. *Seed* pendulous from the apex of a funiculus, which arises from the bottom of the cell; *embryo* cylindrical, curved round farinaceous albumen.

Small *herbs*. *Leaves* opposite, without stipules.

1. SCLERANTHUS. *Linn.*

Calyx 5-cleft, persistent; *tube* urceolate. *Petals* none. *Stamens* 10, rarely 5 or 2. *Styles* 2. *Capsule* very smooth, without valves, covered by the indurated tube of the calyx.

Decandria. *Digynia*.

S. annuus *Linn.*: stems spreading, slightly pubescent; flowers decandrous; calyx of the fruit spreading, acute.

HAB. Sandy fields. N. S. July. ☼.—*Stems* numerous, procumbent. *Flowers* very small, green, in axillary fascicles.

Knaut.

ORDER LIII. CRASSULACEÆ. *De Cand. Lind.*

Sepals 3—20, more or less united at the base. *Petals* inserted in the bottom of the calyx, distinct or cohering in a monopetalous corol. *Stamens* inserted with the petals, either equal to them in number and alternate with them, or twice as many; *filaments* distinct, subulate; *anthers* 2-celled, bursting lengthwise. *Hypogynous scales* several, 1 at the base of each ovary, sometimes obsolete. *Ovaries* as many as the petals, 1-celled, tapering into stigmas. *Fruit* consisting of several follicles, opening by the suture in their face. *Seeds* attached to the margins of the suture, variable in number; *embryo* straight in the axis of the albumen, with the radicle pointing to the hilum.

Succulent *herbs* or *shrubs*. *Leaves* entire or pinnatifid; *stipules* none. *Flowers* usually in cymes, sessile, often arranged unilaterally along the divisions of the cymes.

1. TILLÆA. Linn.

Calyx 3—4-parted. *Petals* 3—4, oblong, acuminate. *Stamens* 3—4. *Scales* none or minute. *Carpels* 3—4, somewhat contracted in the middle, 2-seeded.

Tetrandria. Tetragynia.

T. simplex Nutt. : stem erect and simple ; leaves connate, oblong-linear and somewhat acute ; flowers alternate, sessile ; petals erect, twice as long as the calyx.

HAB. Muddy banks of streams. N. S. July, Aug. ☉.—*Plant* minute.—Mr. Nuttall has given a figure and detailed description of this plant in the Journal of the Philadelphia Acad. i. 114.

2. SEDUM. Linn.

Calyx 5-parted ; *sepals* ovate, often turgid and leafy. *Petals* 5, often spreading. *Stamens* twice the number of the petals. *Carpels* 5, with a nectariferous scale at the base of each.

Decandria. Pentagynia.

1. *S. ternatum* Mich. : stem creeping, a little scabrous ; leaves flat, rounded-spathulate, ternate ; cymes mostly 3-spiked ; terminal flowers decandrous ; the rest octandrous.—*S. portulacoides* Muhl.

HAB. Rocks. Penn. to Car. May. 24.—*Stem* 4—6 inches long. *Lower leaves* rounded, the upper lanceolate. *Flowers* white, sessile. *Stone Crop.*

2. *S. telephioides* Mich. : leaves ovate, flat, acute at each end, toothed ; corymb fasciculate, many-flowered.

HAB. Rocks. N. J. to Car. July. 24.—*Stem* branching. *Leaves* alternate, sometimes oval. *Corymb* terminal, many-parted. *Flowers* pale purple.

3. PENTHORUM. Linn.

Calyx 5-parted. *Petals* 5. *Stamens* 10. *Carpels* 5, concreted at base into a capsule. *Capsule* 5-beaked, 5-celled, 5-sided at the apex. *Seeds* many.

Decandria. Pentagynia.

P. sedoides Linn. : stem branched, angular above ; leaves alternate, lanceolate, subsessile, unequally serrate ; flowers in terminal one-sided spikes or racemes ; seeds numerous, elliptical.

HAB. Overflowed grounds. Can. to Car. July, Aug. 24.—*Stem* 12—18 inches high. *Flowers* white or pale yellow.

Virginian Stone Crop.

ORDER LIV. FICOIDEÆ. De Cand. Lind.

Sepals definite, usually 5, but varying from 4 to 8, more or less combined at the base, equal or unequal. *Petals* indefi-

nite, coloured, opening beneath bright sunshine, sometimes wanting. *Stamens* arising from the calyx, definite or indefinite, distinct; *anthers* oblong, incumbent. *Ovary* inferior, or nearly superior, many-celled; *stigmas* numerous, distinct. *Capsule* either surrounded by the fleshy calyx, or naked, many-celled, often 5-celled, opening in a stellate manner at the apex. *Seeds* definite or indefinite; *embryo* lying on the outside of mealy *albumen*, curved or spiral.

Shrubs or *herbs*. *Leaves* succulent, opposite, simple.

1. SESUVIUM. Linn.

Calyx 5-parted, persistent, lobes coloured within. *Petals* none. *Stamens* 15—30, inserted at the top of the short calycine tube. *Ovary* free, sessile. *Style* none. *Stigmas* 3—5. *Capsule* 3, rarely 4—5-celled, opening circularly, many-seeded. *Icosandria. Di-Pentagynia.*

S. portulacastrum Linn.: leaves linear or lanceolate-oblong, flat; flowers pedicelled or subsessile.

HAB. Sea coast. N. J. to Flor. June—Sept. 2f.—*Stem* succulent. *Leaves* opposite, entire. *Flowers* solitary, axillary, reddish.—“Varies with flowers upon long pedicels, *S. pedunculatum* Pers. and with the flowers subsessile, *S. sessile* Pers.”—De Cand.

ORDER LV. CACTEÆ. De Cand. Lind.

Sepals numerous, usually indefinite and confounded with the petals, either crowning the ovary or covering its whole surface. *Petals* numerous, usually indefinite. *Stamens* indefinite, more or less cohering with the petals and sepals; *filaments* longer, filiform; *anthers* ovate. *Ovary* fleshy, 1-celled; *style* filiform; *stigmas* numerous, collected in a cluster. *Fruit* succulent, 1-celled, many-seeded, smooth or covered with scales, scars or tubercles. *Seeds* without albumen; *embryo* straight, curved or spiral; *cotyledons* flat, thick, foliaceous.

Succulent *shrubs*, very variable in form. *Leaves* mostly wanting; when present fleshy, smooth, and entire or spine-like.

1. OPUNTIA. Tourn.

Sepals numerous, leafy, adnate to the ovary; outer ones flat, short; inner ones petal-like, obovate, rosaceous; tube

above the ovary none. *Stamens* numerous, shorter than the petals. *Style* cylindric, contracted at base. *Stigmas* many, erect, thick. *Berry* ovate, umbilicate at the apex, tuberculate and often bearing spines. *Icosandria. Monogynia.*

O. vulgaris De Cand. : stems erect or procumbent, destitute of proper leaves, articulately proliferous ; articulations compressed, ovate ; spines setaceous ; flowers large, sessile on the margin of the joints ; fruit succulent, smooth.—*Cactus opuntia* Linn.

HAB. Dry rocks and sandy soils. N. Y. to Car. and W. to Miss. June, July. 2f.—*Flowers* yellow, sessile. *Fruit* pulpy and eatable. *Seeds* numerous, immersed in the crimson pulp.

Prickly Pear.

ORDER LVI. GROSSULACEÆ. Lind.

Calyx 4—5-cleft, regular, coloured. *Petals* 4—5, minute, inserted in the throat of the calyx. *Stamens* 4—5, inserted alternately with the petals, very short. *Ovary* 1-celled ; *style* 2—4-cleft. *Berry* crowned with the remains of the flower, 1-celled ; the cell filled with pulp. *Seeds* numerous, suspended among the pulp by long filiform funiculi ; *embryo* minute, with the *radicle* next the hilum ; *albumen* corneous.

Shrubs either unarmed or spiny. *Leaves* alternate, lobed.

1. RIBES. Linn.

Calyx campanulate, 5-cleft. *Petals* 5. *Stamens* 5, rarely 6 ; *filaments* free. *Style* 1—4 cleft. *Berry* 1-celled, many-seeded. *Pentandria. Monogynia.*

* *Stem without thorns.* RIBESIA.

1. *R. albinervium* Mich. : unarmed ; leaves short, acutely lobed, smoothish ; nerves white ; racemes recurved ; berries smooth.

HAB. Catskill mountains. N. Y. April, May. 2.—*Flowers* small, greenish-yellow. *Berries* red. *Pursh.*

2. *R. trifidum* Mich. : unarmed ; leaves moderately lobed, smooth above, pubescent beneath ; racemes loose, pubescent ; flowers rather flat, with the segments of the calyx somewhat 3-cleft ; petals spatulate, obtuse ; berries hairy.

HAB. Mountains. Penn. April, May. *Pursh.* 2.—*Branches* weak. *Leaves* with subacute lobes. *Corol* purple. *Berries* red.

3. *R. rigens* Mich. : unarmed ; branches straight ; leaves on long petioles, acutely lobed and dentate, reticulate-rugose, pubescent beneath ; racemes loose, many-flowered, becoming stiffly erect ; segments of the calyx obovate, obtuse ; berries hispid.

HAB. Mountains. N. S. May, June. 2.—*Racemes* few-flowered, erect. *Calyx* and *corol* purple. *Berries* red, hispid.

Mountain Currant.

4. *R. prostratum* L'Herit. : unarmed ; branches smooth, reclined-prostrate ; leaves lobed, nearly smooth, with the margin ciliate ; racemes somewhat erect, loose ; calyx rather flat ; petals deltoid ; bracts minute ; berries hispid.—*R. glandulosum* Ait.

HAB. Mountains, N. H. and Penn. May. ♀.—Shrub 2—3 feet high. Flowers reddish-yellow, in a loose raceme. Berries red.

5. *R. floridum* Willd. : unarmed ; branches smooth, recurved ; leaves on long petioles, punctate both sides, acutely 3-lobed, pubescent ; racemes pendulous, many-flowered, white pubescent ; calyx tubular ; bracts longer than the pedicels ; berries ovate-globose.—*R. recurvatum* Mich.—*R. pennsylvanicum* Lam.

HAB. Woods and hedges. Can. to Virg. N. to Subarc. Amer. April, May. ♀.—Shrub 3—4 feet high. Flowers pale yellow, 12—15 in a pendulous raceme. Berries black and insipid.

Wild Black Currant.

** Stem thorny. GROSSULARIA.

6. *R. hirtellum* Mich. : spines subaxillary ; branches somewhat hispid ; leaves small, half 3-cleft ; lobes subdentate ; peduncles 1-flowered ; berries smooth.

HAB. Rocks on the Alleghanies, Can. to Vir. May, June. ♀.—Berries red. Pursh.

7. *R. gracile* Mich. : spines subaxillary ; leaves on slender petioles, pubescent on both sides ; lobes acute, dentate, incised ; peduncles slender, erect, about 2-flowered ; calyx tubular, campanulate ; berries often spiny.

HAB. Mountains. N. Y. to Car. April—June. ♀.—Shrub 2—3 feet high. Petals white. Berries green becoming purple.

8. *R. triflorum* Willd. : spines subaxillary, short, leaves smooth, 3—5-lobed, incisely toothed, on short petioles ; peduncles about 3-flowered ; pedicels elongated ; bracts very short ; petals spatulate, undulate ; styles hairy, exserted, deeply 3-cleft ; berries small, smooth.

HAB. Mountains. N. S. May, June. ♀.—Shrub 3—4 feet high. Petals white. Berries smooth, pale red, somewhat resembling the common gooseberry. Wild Gooseberry.

9. *R. oxycanthoides* Linn. : larger spines subaxillary ; smaller ones scattered over the stem ; leaves smooth, somewhat 3-lobed ; lobes dentate ; peduncles short, about 2-flowered ; berries globose, smooth.

HAB. Rocks. April, May. ♀.—Shrub 3 feet high. Flowers pale yellow. Berries purplish-blue.

10. *R. lacustre* Pursh : spines subaxillary, compound ; stem on every part aculeate-hispid ; leaves lobed beyond the middle ; petioles villous ; racemes pendulous, loose, 5—6-flowered ; berries hispid.—*R. oxycanthoides* var. *lacustris* Pers.—*R. oxycanthoides* Mich.

HAB. Mountains. N. H. April—June. ♀.—Shrub 3—4 feet high. Flowers small, greenish-yellow. Berries dark brown, hispid.

11. *R. cymosati* Jacq. : subaxillary spines in pairs ; leaves with short lobes, incisely toothed, softly pubescent ; racemes nodding, few-flowered ; calyx erect-campanulate ; berries prickly.

HAB. Mountains. N. H. and Penn. April, June. ♀.—*Racemes* few-flowered. *Calyx* white. *Petals* very small. *Berry* covered with long prickles. *Prickly Gooseberry*.

ORDER LVII. SAXIFRAGEÆ. De Cand. Lind.

Calyx either superior or inferior, 4—5-cleft. *Petals* 5, or none, inserted between the lobes of the calyx. *Stamens* 5—10, inserted either into the calyx, or beneath the ovary. *Disk* either hypogynous or perigynous. *Ovary* inferior, or nearly superior, usually consisting of two carpels, 1 or 2-celled, rarely 4 or 5-celled. *Styles* none. *Stigmas* sessile on the tips of the lobes of the ovary. *Fruit* a capsule or berry, with numerous minute seeds. *Embryo* taper in the axis of a fleshy *albumen*.

Herbs. *Leaves* simple, alternate, without stipules.

1. HYDRANGEA. Linn.

Calyx hemispheric, adnate to the germ, 5-toothed. *Petals* 5, regular. *Stamens* 10. *Styles* 2, distinct. *Capsule* 2-celled, crowned by the styles and teeth of the calyx, opening by a foramen between the styles. (Placed under *Caprifoliaceæ* by Lindley.) *Decandria. Digynia*.

1. *H. vulgaris* Mich. : leaves oblong-ovate, acuminate, dentate, obtuse at base, smooth beneath ; flowers in terminal naked cymes.—*H. arborescens* Linn.

HAB. Rocky situations. Penn. Pursh. July. ♀.—*Shrub* 4—6 feet high. *Flowers* white.

2. *H. radiata* Walt. : leaves cordate, ovate, acuminate, serrate, tomentose and white beneath ; cymes terminal, radiate.—*H. nivea* Mich.

HAB. Penn. to Geor. Muhl. July. ♀.—*Shrub* 6 feet high. *Flowers* white, very ornamental. *Hydrangea*.

2. SAXIFRAGA. Linn.

Calyx 5-parted. *Petals* 5, entire, with short claws. *Stamens* 10. *Capsule* with 2-beaks, 2-celled, many-seeded, opening between the beaks. *Decandria. Digynia*.

1. *S. virginiensis* Mich. : pubescent ; stem nearly leafless, corymbose-paniculate ; leaves oval, obtuse, crenate, narrowed at the base into a petiole ; flowers subsessile ; petals oval, much larger than the calyx ; capsule half inferior.—*S. vernalis* Big.—*S. nivalis* Muhl.

HAB. Rocky hills. Can. to Geor. W. to Miss. April, May.
 2l.—Stem 4—12 inches high. Radicle *leaves* rather spatulate.
Flowers crowded near the extremities of the branches, white.

Early Saxifrage.

2. *S. pennsylvanica* Linn.: pubescent; stem naked; leaves oblong-lanceolate, acute at each extremity, obsoletely denticulate; panicle oblong; flowers fasciculate; petals linear, longer than the calyx; capsule superior.

HAB. Wet grounds. N. S. May, June. 2l.—Stem 1—2 sometimes 3—4 feet high. *Petals* yellowish-green. Much larger than the preceding. Root very astringent. *Large Saxifrage.*

3. CHRYSOSPLENIUM. Linn.

Calyx 4—5-cleft, coloured. *Corol* none. *Stamens* 8—10. *Styles* 2. *Capsule* with two beaks, 2-valved, at length 1-celled, many-seeded. *Decandria. Digynia.*

C. oppositifolium Linn.: leaves opposite, roundish, narrowed into a petiole, slightly crenate.

HAB. Springs and brooks. Can. to Car. April, May. 2l.—Plant succulent, creeping, with small sessile flowers. *Stamens* usually 8. *Golden Saxifrage.*

4. MITELLA. Linn.

Calyx campanulate, 5-cleft. *Petals* 5, inserted into the calyx, lacinate or toothed. *Stamens* 10. *Styles* 2, united. *Stigmas* scarcely distinct. *Capsule* 1-celled, 2 valved; valves equal. *Decandria. Digynia.*

1. *M. diphylla* Linn.: radicle leaves cordate-lobed, toothed and ciliate; cauline ones 2, opposite, smaller; flowers in a terminal raceme; petals toothed-pinnatifid; calyx and capsule at length membranaceous.

HAB. On wet rocks, &c. N. S. May. 2l.—Stem 8—10 inches high. *Flowers* small, white, in a long terminal spike.

False Sanicle.

2. *M. cordifolia* Linn.: radicle leaves cordate, sub-3-lobed, doubly crenate; scape naked or with a single leaf, scaly at base; petals fimbriate-pinnatifid.—*M. nuda* Willd.—*M. reniformis* Lam. Pursh.

HAB. Moist rocks. Can. and N. S. June. 2l.—Stem 6—8 inches high, sometimes prostrate with creeping suckers.

5. TIARELLA. Linn.

Calyx 5-parted, persistent, with the lobes obtuse. *Petals* 5, inserted into the calyx, unguiculate, entire. *Stamens* 10. *Styles* 2, distinct. *Capsule* 1-celled, 2-valved; valves unequal. *Decandria. Digynia.*

T. cordifolia Linn.: leaves cordate, acutely lobed, dentate; teeth mucronate; scape racemed; petals with long claws.

HAB. Shady rocks. Can. and N. S. May. 2f.—Scape 8—10 inches high. Flowers white, in a simple terminal raceme.

Mitre-root.

6. HEUCHERA, Linn.

Calyx persistent, 5-cleft. *Petals* 5, inserted on the calyx. *Stamens* 5. *Styles* 2, distinct, as long as the stamens. *Capsules* with 2-beaks, 1-celled, many-seeded.

Pentandria. Digynia.

1. *H. americana* Linn.: viciidly pubescent; scape and leaves somewhat scabrous; leaves radical, on long pubescent petioles, with rounded and dentate lobes; flowers in a long terminal panicle or thyrses; calyx short, obtuse; petals lanceolate, as long as the calyx; stamens exserted.—*H. cortusa* Mich.—*H. viscida* Pursh.

HAB. Shady rocks. N. Y. to Geor. W. to Miss. June, July. 2f.—Scape 2—3 feet high. Flowers small, red, in a long simple panicle.—This species has been found by Dr. Samuel B. Mead near North Salem, Westchester county, N. Y. *Alum-root.*

2. *H. pubescens* Pursh: pulverulent-pubescent; scape smooth below; leaves somewhat acutely lobed, smooth beneath, toothed; teeth rounded, mucronate; peduncles short, with crowded flowers; calyx large, bell-shaped; petals longer than the calyx; stamens scarcely exserted.

HAB. Mountains. Penn. and Virg. May, June. 2f.—Scape 2 feet high. Flowers large, red with yellow.

7. ITEA, Linn.

Calyx 5-cleft, campanulate. *Petals* 5, linear reflexed, inserted into the calyx. *Stamens* 5. *Style* 1. *Stigma* capitate, 2-lobed. *Capsule* 2-celled, 2-valved; valves bent inwards. (Placed by Dr. Torrey, with a mark of doubt, under this order; by other botanists under *Ericææ*. Its true place does not appear to be fully settled.) *Pentandria. Monogynia.*

I. virginica Linn.

HAB. Borders of swamps. N. J. to Car. June. 5f.—Shrub 4—8 feet high, branching. Leaves alternate, lanceolate, acuminate, serrulate, pubescent beneath. Flowers white, in simple terminal racemes.

ORDER LVIII. UMBELLIFERÆ. De Cand. Lind.

Calyx superior, either entire or 5-toothed. *Petals* 5, inserted on the outside of a fleshy disk. *Stamens* 5, alternate

with the petals. *Styles* 2, distinct; *stigmas* simple. *Fruit* consisting of two *carpels*, which are attached to a common axis by their face (the *commissure*) from which they separate when ripe; each *carpel* traversed by ribs or ridges, of which 5 are primary, and 4 alternating with them, secondary. *Seed* solitary, pendulous; *embryo* minute, at the base of a horny *albumen*.

Herbs with fistular furrowed stems. *Leaves* mostly compound and sheathing at the base. *Flowers* in umbels.

SUBORDER 1. ORTHOSPERMÆ.

Albumen flat or flattish within.

* *Umbels* simple or imperfect.

1. HYDROCOTYLE. Linn.

Calyx with the tube subcompressed, and the margin of the limb obsolete. *Petals* ovate, entire, acute, with apex straight. *Fruit* laterally compressed; *ribs* 5, filiform, the middle and lateral ones often obsolete.—Umbel simple. Involucre few-leaved. *Pentandria. Digynia.*

1. *H. interrupta* Muhl.: stem filiform, creeping, rooting at the joints, smooth; leaves peltate, orbicular, doubly crenate; flowers 5—8 in axillary umbellate heads.—*H. vulgaris* Mich.

HAB. Wet places. Can. to Geor. Pursh. June—Aug. 2l.—*Flowers* minute, white, in small umbels or bunches, which are much shorter than the petioles. *Marsh Penny-wort.*

2. *H. umbellata* Linn.: stem glabrous, rooting at the joints; leaves peltate-orbicular, doubly crenate; emarginate at the base; umbels 20—30-flowered; flowers distinct, pedicelled.

HAB. Swamps. N. Y. to Geor. June—Aug. 2l.—*Umbels* on peduncles longer than the leaves. *Flowers* white, minute.

3. *H. americana* Linn.: root tuberous; stem filiform, with long creeping suckers; leaves reniform, slightly 7-lobed, crenate; umbels few-flowered, axillary, nearly sessile.

HAB. Moist places. Can. to Geor. June, July. 2l.—*Leaves* nearly orbicular, 9-nerved. *Umbels* 4—6 flowered, axillary. *Petals* greenish-white.

4. *H. cymbalarifolia* Muhl.: creeping, glabrous; leaves reniform, 3-lobed, the intermediate one smaller, cordate, crenate; umbels few-flowered, on peduncles; flowers nearly sessile.—*H. ranunculoides* Linn. ? Torr.

HAB. Penn. to Geor. June. 2l.—Differs from the former in having the leaves smaller, more coriaceous in their texture, more

distinctly lobed, and in having the umbel pedunculate.—Sprengel considers this species identical with *H. nitidula* Mich.

2. CRANTZIA. Nutt.

Calyx with the tube subglobose; limb nearly wanting. *Petals* roundish, entire, obtuse. *Styles* obtuse. *Fruit* roundish; commissure excavated. *Carpels* (*Mericalpia* D. C.) unequal, with 3 marginated dorsal ribs, and 4 obtuse-angled grooves.—Umbel simple. Involucre [5—6-leaved. Flowers white. *Pentandria. Digynia.*

C. lineata Nutt.—*Hydrocotyle lineata* Mich. Torr.

HAB. Muddy banks of streams. N. Y. to Geor. July. 2f.—*Stem* smooth, creeping. *Leaves* about 2 at each joint, 1 1-2 inch long, thick, sessile, linear, cuneate, with transverse lines. *Umbels* 8—10 flowered, on long peduncles. *Flowers* pedicellate, white.

3. ERIGENIA. Nutt.

Calyx with the margin obsolete. *Petals* 5, obovate, entire, equal. *Styles* persistent, very long, subulate. *Fruit* oval, somewhat laterally compressed. *Carpels* gibbously convex, marked with 3 striæ.—Umbel irregular, imperfect. General involucre none; partial one a few unequal leaflets. *Petals* white. *Pentandria. Digynia.*

E. bulbosa Nutt.—*Hydrocotyle composita* Pursh.—*H. bipinnata* Muht.—*Sison bulbosum* Mich.

HAB. Wet grounds. Lancaster, Penn. and W. to Miss. March, April. 2f.—*Root* globose, tuberous. *Stem* simple, 4—5 inches high, 2-leaved. *Leaves* 3-parted; partitions subpinnate; segments rhomboidal, cleft. *Umbels* terminal, 3—5 flowered. *Flowers* white.—The habit of this plant is so decidedly different from *Hydrocotyle* as to warrant its separation.

4. SANICULA, Linn.

Calyx with the tube echinate and the lobes persistent. *Petals* erect connivent, obovate, deeply emarginate. *Fruit* subglobose, solid, not ribbed, armed with uncinate bristles.—Umbels few-rayed. Leaflets of the involucre few, often divided. Flowers polygamous. *Pentandria. Digynia.*

S. marilandica Linn.: leaves digitate; leaflets oblong, incisely serrate; flowers in small head-form umbels; fertile ones sessile, sterile ones pedicellate.

b. canadensis Torr.: leaves subternate; leaflets ovate, coarsely toothed.—*S. canadensis* Linn.

HAB. Woods. Throughout the U. S. June, Aug. 2f.—*Stem* 2 feet high, erect, smooth. *Flowers* greenish-white.—Var. *b.* is found, according to Mr. Brace, at Litchfield, Conn.

5. ERYNGIUM. Linn.

Calyx 5-parted; tube rough with scales. *Petals* erect, connivent, oblong-obovate, deeply emarginate. *Fruit* scaly or tuberculose.—*Flowers* in a roundish or oblong head. Lower bracts often large and resembling an involucre; the rest (chaff,) mixed with the flowers. *Pentandria. Digynia.*

1. *E. aquaticum* Linn.: leaves linear-lanceolate, nerved, remotely ciliate-spinose; lower ones subensiform; those of the flowers lanceolate, dentate; flowers in ovate heads, at the extremities of the branches; leaflets of the involucre 8—9, shorter than the head and with the chaff entire.—*E. yuccafolium* Mich.

HAB. Wet grounds. N. J. to Geor. Aug. 2f.—*Stem* 2—3 feet high, smooth, dichotomous above. *Flowers* white or pale blue. *Leaves* 12—18 inches long. Medicinal. See *Ell. Sk. i.* 343. *Button Snake-root.*

2. *E. virginianum* Lam.: leaves long-lanceolate, serrate, tapering at each end; flowers in large terminal umbels or corymbs; leaflets of the involucre 7—8, longer than the heads, laciniate, subulate, whitish beneath; chaff 3-cleft.—*E. aquaticum* Mich.

HAB. Marshes. N. J. to Geor. July, Aug. 2f.—*Stem* 3—4 feet high, hollow. *Leaves* 6—8 inches long. *Flowers* pale blue or white.

3. *E. virgatum* Lam.: leaves spatulate-ovate, irregularly toothed, short petioled, sometimes a little cordate; heads of flowers small, pedunculate, shorter than the linear leaflets of the involucre; chaff 3-cleft.—*E. ovalifolium* Mich. *Ell.*

HAB. Wet meadows. N. J. to Geor. July. 2f.—*Stem* 2—3 feet high, simple, branching above. *Leaves* about 2 inches long. *Flowers* blue, in small heads.

**** Umbels compound or perfect.**

6. CICUTA. Linn.

Calyx with the margin 5-toothed. *Petals* obcordate, reflexed. *Fruit* roundish, didymous, laterally contracted. *Carpels* with 5 equal flattish ribs; the lateral ribs margined.—General involucre none or few-leaved; partial one many leaved. *Flowers* white. *Pentandria. Digynia.*

1. *C. maculata* Linn.: stem spotted; lower leaves triternate and quinate; upper biternate; segments lanceolate or ovate-lanceolate, acuminate, mucronately serrate; umbels large, axillary and terminal; partial involucre of 5—6 setaceous leaves.

HAB. Wet grounds. Can. to Car. W. to Miss. July, Aug. 2l.—Stem 3—4 feet high, terete, smooth. Petals white, obcordate. Poisonous and medicinal. *Big. Med. Bot. i. 125.*

Water Hemlock.

2. *C. bulbifera* Linn.: leaves various, ternate and biternate; leaflets linear and linear-lanceolate, remotely toothed; umbels small, terminal, solitary; partial involucre of 3—5 subulate leaves; axils of the leaves bulbiferous.

HAB. Swamps. Can. and N. S. Aug. 2l.—Stem 2—3 feet high, smooth and slender. Umbels small. Flowers white.

7. ZIZIA. Koch. De Cand.

Calyx with the margin obsolete or very short, 5-toothed. *Petals* elliptic, attenuated into a long inflexed point. *Fruit* laterally contracted, subdidymous, roundish or oval. *Carpels* with 5 prominent equal ribs; the lateral ribs margined.—General involucre none; partial one few-leaved. Flowers yellow, rarely white or dark purple. *Pentandria. Digynia.*

1. *Z. aurea* Koch: leaves biternate, shining; segments oblong-lanceolate, attenuate at base, incisely serrate; partial involucre 3-leaved, unilateral.—*Smyrniium aureum* Linn.—*Sison aureus* Spreng. Torr.—*Thaspiium aureum* Nutt.

HAB. Rocky hills. N. Y. to Car. W. to Miss. June, July. 2l.—Stem 1 1-2 to 2 feet high. Rays of the umbel short. Flowers bright yellow.

2. *Z. cordata* Koch: radical leaves undivided, cordate, crenate, petiolate; cauline ones subsessile, ternate; segments petiolate, ovate, cordate, serrate; partial involucre 1-leaved.—*Smyrniium cordatum* Walt.—*S. trifoliatum* Nutt.

HAB. Meadows. Can. to Flor. W. to Miss. May, June. 2l.—Stem 12—18 inches high, smooth. Flowers yellow. Fruit black.

3. *Z. integerrima* De Cand.: leaves biternate, somewhat glaucous; segments ovate, very entire; partial involucre 1-leaved, very short.—*Smyrniium integerrimum* Linn.—*Sison integerrimus* Spreng. Torr.

HAB. Mountains. Can. to Geor. W. to Miss. June. 2l.—Stem 1—2 feet high. Umbel with elongated filiform rays. Flowers yellow.

8. DISCOLEURA. De Cand.

Calyx with 5 subulate persistent teeth. *Petals* ovate, entire. *Fruit* ovate, subdidymous. *Carpels* with 5 ribs; 3 dorsal ribs filiform, exsert, subacute; 2 lateral ones with a thick margin.—Leaves much divided; the segments linear. Partial involucre a few linear setaceous leaflets. Flowers white. *Pentandria. Digynia.*

D. capillacea De Cand. : stem erect or procumbent ; umbels 3—10-rayed ; leaflets of the involucre 3—5, mostly 3-cleft.—*Ammi majus* Walt.—*Ammi capillaceum* Spreng.

HAB. Bogs. N. Y. to Geor. July—Sept. ☉.—Stem 1—2 feet long, geniculate, smooth. Leaves many-parted, with the segments all linear. Flowers white, on axillary umbels.

Bishop Weed.

9. CRYPTOTÆNIA. De Cand.

Calyx with the margin obsolete. *Petals* obovate, subentire, inflexed. *Fruit* laterally contracted, linear-oblong, crowned with straight styles. *Carpels* with 5 equal filiform obtuse ribs.—Umbels numerous, arranged somewhat in the form of a panicle. Rays few. General involucre none ; partial one few leaved. Flowers white. *Pentandria. Digynia.*

C. canadensis De Cand. : leaves ternate, smooth ; leaflets rhomboid-ovate, acute, incisely toothed, acutely serrate ; umbels numerous, lower ones rising from the axils of the upper leaves ; fruit oblong, rostrate with the persistent styles.—*Sison canadense* Linn.—*Cherophyllum canadense* Pers. Pursh.—*Myrrhis canadensis* Nutt. Torr.

HAB. Rocky woods. Can. to Car. June. 24.—Stem 2—3 feet high, erect, smooth. Flowers white.

10. SIUM. Linn.

Calyx with the margin 5-toothed, often obsolete. *Petals* obovate, emarginate, inflexed. *Styles* divergent-reflexed, capitate at the apex. *Fruit* compressed or contracted at the side, subdidymous, crowned with the styles. *Carpels* with equal filiform and somewhat obtuse ribs.—Mostly aquatics. Leaves pinnate. Umbels terminal. Involucre many-leaved, rarely wanting. Flowers white. *Pentandria. Digynia.*

1. *S. latifolium* Linn. : root creeping ; stem erect, angular ; leaves pinnate ; leaflets ovate-lanceolate, unequal at base, sessile, smooth, equally serrate, sometimes pinnatifid ; umbels terminal, large, many-rayed ; involucre many-leaved.

HAB. Swamps. Can. to Car. July. 24.—Stem 2—4 feet high. Flowers white.—When growing in water the lower leaves are bipinnatifid, or have the leaflets lacinate. Water Parsnip.

2. *S. lineare* Mich. : stem erect, smooth, angular and sulcate ; lower leaves pinnate, upper ones ternate ; leaflets linear-lanceolate, acutely and finely serrate ; umbel terminal, with short rays ; involucre many-leaved, linear.—*S. tenuifolium* Muhl.

HAB. Swamps. N. S. July. 24.—Stem tall. Leaflets very long and narrow. Flowers white.

11. BUPLEURUM. *Linn.*

Calyx with the margin obsolete. *Petals* roundish, entire, involute. *Fruit* laterally compressed or subdidymous, crowned with the depressed style. *Carpels* with 5 winged acute, filiform or obsolete ribs; lateral ribs marginal.—Leaves mostly simple. Umbel compound. Involucre various. Flowers yellow. *Pentandria. Digynia.*

B. rotundifolium *Linn.*: stem leaves perfoliate, roundish-ovate; umbel 5-rayed; general involucre none; partial one of 5-mucronate leaflets.—*B. perfoliatum* *Lam.*

HAB. Near cultivated grounds. ☉.—Introduced, but apparently growing wild near North Salem, Westchester co. N. Y. *Dr. Samuel B. Mead.*

12. ÆTHUSA. *Linn.*

Calyx with the margin obsolete. *Petals* obovate, emarginate, inflexed. *Fruit* ovate-globose. *Carpels* with 5 elevated, thick and acutely keeled ribs; the lateral ribs margined and a little broader, and surrounded by a somewhat winged keel.—Leaves much divided. General involucre none or 1-leaved; partial one 1—3 or 5 leaves. Flowers white.

Pentandria. Digynia.

Æ. cynapium *Linn.*: leaves bi- and tri-pinnate, dark green; segments ovate-lanceolate; umbels terminal.

HAB. Road sides, &c. Boston, probably introduced. *Big.* July, Aug. ☉.—Stem about a foot high, smooth. Flowers white, in many rayed umbels—Said to resemble *Conium maculatum*, but is smaller. Poisonous. *Fool's Parsley.*

13. CNIDIUM. *Cuss. De Cand.*

Calyx with the margin obsolete. *Petals* obovate, emarginate, reflexed. *Fruit* roundish in the transverse section. *Carpels* with 5 equal winged ribs; wings membranaceous; lateral ribs margined.—General involucre various; partial one many-leaved. Flowers white or reddish. Allied to *Seseli*, but differs, in the membranaceous-winged ribs of the fruit, and the obsolete margin of the calyx. *Pentandria. Digynia.*

T. canadensis *Spreng.*: stem angular, flexuous; leaves bipinnate, shining; leaflets many-parted; segments lanceolate; involucre many-leaved.—*Selinum canadense* *Mich. Pursh.*—*Apium bipinnatum* *Walt.*

HAB. Banks of streams. Can. to Car. July. 21.—Flowers white. *Pursh.*

14. THASPIUM. Nutt.

Calyx with the margin 5-toothed. *Petals* elliptic, attenuated into a long inflexed point. *Fruit* not contracted at the side, subelliptic. *Carpels* convex, with 5 winged ribs; wings subequal; intervals grooved.—General involucre none; partial one about 3-leaved. Differs from *Cnidium* in its 5-toothed calyx,—petals not emarginate,—involucels 3-leaved—and in its habit. *Pentandria. Digynia.*

* *Umbels opposite. Flowers dark purple.*

1. *T. atropurpureum* Nutt.: stem smooth, dichotomously branched; radical leaves subcordate, simple, serrate; cauline ones ternate; leaflets ovate, acute, subcordate.—*Cnidium atropurpureum* Spreng. Torr.

HAB. Moist grounds. N. S. June. 2f.—Stem 2—3 feet high. *Petals* dark purple. *Fruit* small, with membranaceous wings.

** *Umbels terminal. Flowers yellow.*

2. *T. actaeifolium* Nutt.: stem very tall, smooth and straight; lower leaves tri-ternate; upper ones bi-ternate; leaflets oval, coarsely toothed; umbels numerous, terminal, somewhat whorled; partial involucre setaceous.—*Ligusticum actaeifolium* Mich. Torr.

HAB. Can. to Car. July. 2f.—Stem 3—4 feet high. *Fruit* oblong-oval, with the ribs somewhat winged.

3. *T. barbinode* Nutt.: petioles and nodes of the stem pubescent; lower leaves tri-ternate; upper ones bi-ternate; segments cuneate-ovate, acute, unequally and incisely serrate, entire at the base; partial involucre 3-leaved, setaceous.—*Ligusticum barbinode* Mich.—*Smyrnium barbinode* Muhl.—*Thapsia trifoliata* Spreng. Torr.

HAB. Banks of the Schuylkill, near Philadelphia. Nutt. Stem 2—3 feet high. *Flowers* yellow, in a terminal umbel.

15. LIGUSTICUM. Linn.

Calyx with the margin 5-toothed or obsolete. *Petals* obovate, acute, emarginate, inflexed; claw very short. *Fruit* roundish in the transverse section, or slightly laterally compressed. *Carpels* with 5 equal and somewhat winged ribs; the lateral ones margined.—Involucre various—partial one many-leaved. *Flowers* white. *Pentandria. Digynia.*

L. scoticum Linn.: stem erect, smooth and striate; lower leaves bi-ternate; upper ones ternate and nearly sessile; leaflets broadly ovate, coarsely serrate; umbels many-rayed; flowers equal; petals inflexed; involucre linear-lanceolate, 5—7-leaved.

HAB. Borders of salt marshes. Salem, Mass. Big. Aug. 2f. —Stem 12—18 inches high. *Flowers* white. Identical with the foreign plant. *Sea Lovage.*

16. ANGELICA. Linn.

Calyx with the margin obsolete. *Petals* lanceolate, entire acuminate, with a straight or incurved point. *Fruit* compressed on the back, with the central raphe two-winged on each side. *Carpels* with 3-dorsal filiform elevated ribs; the 2 lateral ribs dilated into a membranaceous wing.—Umbels terminal. General involucre none or few-leaved; partial one many-leaved. Flowers white. *Pentandria. Digynia.*

1. *A. triquinata* Mich.: stem terete, pubescent above; leaves on long petioles, ternate, the partitions quinate; leaflets oblong-ovate, equally serrate, smooth; lower ones 2-lobed at the base; general involucre none; partial one of 6—8 subulate leaves, directed to one side.—*A. hirsuta* Muhl.—*Ferula villosa* Walt.

HAB. Dry grounds. N. Y. to Car. July, Aug. 2 $\frac{1}{2}$.—Stem 2—3 feet high, erect and straight, white, villous below the umbel. Leaflets ovate or subrhomboidal. Umbels mostly 3. Flowers numerous, white.

2. *A. atropurpurea* Linn.: stem large, smooth, coloured; leaves ternate, on large inflated sheathing petioles; partitions subquinate; leaflets large, oblong-ovate, coarsely serrate, sublobed; the three terminal ones often united at base; general involucre none; partial one of 8—10 subulate leaves.—*A. triquinata* Big.

HAB. Wet meadows. June. 2 $\frac{1}{2}$.—Stem 3—6 feet high, purplish. (Dr. Darlington says it is often nearly the size of a man's arm at base.) Flowers white.—This, undoubtedly, is the *A. atropurpurea* of most of our American botanists, except Dr. Bigelow; but whether it be the true Linnæan plant I have no means of determining. Our *A. atropurpurea* is much larger than *A. triquinata*, has its leaflets large and ovate-oblong, instead of small and ovate. Plant powerfully aromatic. Root poisonous.

Common Angelica.

3. *A. lucida* Linn.: stem erect, glabrous; leaves bi- and tri-pinnate; leaflets equal, ovate, cuneate at base, incisely serrate; general involucre about 5-leaved; partial one subulate.—*Imperatoria lucida* Nutt.?

HAB. Shady woods. Can. to Car. Pursh. June, July. 2 $\frac{1}{2}$.—Stem 1—2 feet high. Flowers white. Root aromatic.

17. ARCHEMORA. De Cand.

Calyx with the margin 5-toothed. *Petals* obcordate, inflexed. *Fruit* dorsally compressed, flat, oval or obovate. *Carpels* with 5 subcarinate equidistant filiform ribs; lateral ribs dilated into a membranaceous margin nearly as broad as the seed.—General involucre none or few-leaved; partial one many-leaved. Flowers white.—Has the habit of *Oenanthe* or *Sium*; the fruit of *Pastinaca*. *Pentandria. Digynia.*

1. *A. rigida* De Cand. : stem erect, rigid, striate ; leaves pinnate, smooth ; leaflets 4—5 pairs, large, oblong-lanceolate, entire or with several remote teeth ; umbels terminal, on long peduncles ; general involucre none ; partial one of 6—8 subulate leaves ; fruit much compressed.—*Sium rigidius* Linn.—*Sium marginatum* Mich.—*Pastinaca rigida* Spreng. Torr.—*Enanthe rigida* Nutt.

HAB. Swamps. N. J. to S. Car. Sept. 24.—Stem 2—4 feet high. Leaves with a white and sometimes scabrous margin. Flowers white.

2. *A. ambigua* De Cand. : stem erect, slightly angular ; leaves pinnate, smooth ; leaflets narrow-linear or linear-lanceolate, long, mostly entire, somewhat glaucous beneath ; umbels terminal, subsolitary ; general involucre none ; partial one of 3—5 subulate leaves.—*Enanthe ambigua* Nutt.—*Pastinaca ambigua* Torr.—*Sium longifolium* Pursh.

HAB. Brackish swamps. N. J. Aug. 24.—Stem 3—5 feet high. Flowers white.—Dr. Torrey considers this plant identical with *Enanthe ambigua* of Nuttall ; while according to the latter botanist it is undoubtedly *Sium lineare* of Linnæus. The principal difference between the present plant as characterized by Torrey and *S. lineare*, consists in the absence of the general involucre. Dr. Asa Gray informs me that this species has been found in the sandy swamps of Michigan.

18. PASTINACA. Linn.

Calyx with the margin obsolete or minutely denticulate. *Petals* roundish, entire, involute. *Fruit* dorsally and flatly compressed, surrounded by a dilated margin. *Carpels* with very slender ribs ; 3 intermediate ribs equidistant ; 2 lateral ones contiguous.—Umbels compound. Involucres none or few-leaved. Flowers yellow. *Pentandria. Digynia.*

P. sativa Linn. : stem smooth, sulcate ; leaves pinnate ; leaflets sessile, subpubescent beneath, oblong, incised, terminal one 3-lobed ; umbels large, terminal ; fruit oval, much compressed.

HAB. Fields. July, Aug. ♂.—Stem 2—3 feet high. Flowers yellow. Introduced. *Wild Parsnip.*

19. HERACLEUM. Linn.

Calyx 5-toothed. *Petals* obovate, emarginate, inflexed ; outer ones often rayed, bifid. *Fruit* dorsally and flatly compressed, surrounded by a membranaceous margin. *Carpels* with 3 equidistant ribs on the back ; 2 lateral ribs with a dilated margin.—Umbels many-rayed. General involucre caducous, often few-leaved ; partial one many-leaved.

Pentandria. Digynia.

H. lanatum Mich.: stem sulcate, pubescent; leaflets ternate, petioled, tomentose beneath; leaflets petioled, round-cordate, lobed; partial involucre 5—6 leaved; fruit orbicular.

HAB. Meadows. June. 2f.—Stem 3—5 feet high. Petioles very broad and membranous. Flowers white, in very large terminal umbels.—One of our largest umbelliferous plants. Sprengel considers it identical with the foreign *H. panaces* Linn.

Cow Parsnip.

20. DAUCUS. Linn.

Calyx with the margin 5-toothed. *Petals* obovate, emarginate, inflexed; outer ones often rayed and deeply bifid. *Fruit* somewhat laterally compressed, ovate or oblong. *Carpels* with 5 primary filiform ribs; 3 intermediate dorsal ones, 2 lateral flat, placed on the commissure; 4 secondary ones equal, with prominent wings, parted into a simple aculeate series.—General involucre with many pinnate or pinnatifid leaves; partial one with many entire or trifid leaflets. Flowers white or yellow. *Pentandria. Digynia.*

D. carota Linn.: stem erect, hispid; leaves tripinnate; leaflets incised, linear-lanceolate, acute; umbel at length concave; fruit bristly.

HAB. Old fields. June—Aug. ♂.—Stem 2 feet. Flowers white. Introduced. Wild Carrot.

SUBORDER II. CAMPYLOSPERMÆ.

Albumen involute.

21. CHÆROPHYLLUM. Linn.

Calyx with the margin obsolete. *Petals* obovate, emarginate, inflexed. *Fruit* not beaked, laterally contracted or compressed. *Carpels* with 5 obtuse equal ribs; lateral ribs margined.—General involucre none or few-leaved; partial one many-leaved. Flowers white, sometimes reddish. *Pentandria. Digynia.*

C. procumbens Lam.: stem procumbent, somewhat hairy; leaves bipinnate; segments lanceolate, rather obtuse; umbels terminal, 3-rayed; partial involucre of 4—5 ovate ciliate leaves; fruit prismatic, smooth, crowned with the persistent styles.—*Scandix procumbens* Linn.—*Myrrhis procumbens* and *M. bifida* Spreng.

HAB. In shady situations. N. Y. to S. Car. May. ☉.—Stem 6—8 inches high. Umbel bifid, few-flowered. Flowers small, white.

22. OSMORHIZA. Raf.

Calyx with the margin obsolete. *Petals* ovate, scarcely emarginate, with a very short inflexed point. *Fruit* elongated,

attenuated at base, solid, acute-angled, in the transverse section roundish. *Carpels* with hispid angles and 5 acute ribs; commissure sulcate.—General involucre 2—3-leaved; partial one often 5-leaved. Flowers white; central ones sterile; outer ones fertile.

Pentandria. Digynia.

1. *O. longistylis* De Cand. : stem smooth and striate; leaves biternate; the lower ones on short petioles; leaflets ovate, incisely lobed and dentate; umbel 3—4-rayed.—*Myrrhis longistylis* Torr.—*Uraspermum claytoni* Nutt.—*Scandix dulcis* Muhl.

HAB. Wet meadows. N. S. June. 2f.—Stem 3 feet high.—

Can be most easily distinguished by its long subulate styles.

2. *O. brevistylis* De Cand. : stem hairy (at first hoary-white); leaves biternate, pubescent; leaflets incisely lobed, dentate; umbel 3-rayed; styles very short.—*Myrrhis claytoni* Torr.—*Uraspermum hirsutum* Big.?

HAB. Shady rocks. Can. to Car. May, June. 2f.—Stem 2 feet high. Flowers white. Whole plant sweet tasted.

Sweet Cicely.

23. CONIUM. Linn.

Calyx with the margin obsolete. *Petals* obcordate, somewhat emarginate, very short and inflexed. *Fruit* ovate, laterally compressed. *Carpels* with 5 prominent equal, undulate ribs; the lateral ribs margined.—Involucres 3—5-leaved; partial one dimidiate. Flowers white, all fertile.

Pentandria. Digynia.

C. maculatum Linn. : stem erect, branched, smooth and spotted; leaves large, tripinnate; leaflets lanceolate, pinnatifid; ultimate segments lanceolate, mostly entire; general and partial umbels many-rayed; general involucre of several short lanceolate leaves; partial one few-leaved, setaceous, directed to one side.

HAB. Road sides. Can. and N. S. July. ♂.—Stem 2—4 feet high. Leaves smooth and shining. Flowers white, numerous. Probably introduced. Whole plant highly poisonous; fetid when bruised. Medicinal.—*Big. Med. Bot.* i. 113.—*Raf. Med. Fl.* i. 118.

Hemlock.

ORDER LIX. ARALIACEÆ. De Cand. Lind.

Calyx superior, entire or toothed. *Petals* definite, 5 or 6, deciduous. *Stamens* definite, 5 or 6 or 10 or 12, arising from within the border of the calyx, and from without an epiginous disk. *Ovary* inferior, with many cells; *ovules* solitary, pendulous; *styles* equal in number to the cells; *stigmas* simple. *Fruit* succulent or dry, consisting of several 1-seeded cells. *Seeds* solitary, pendulous.

Trees, shrubs or herbaceous plants with the habit of umbelliferae.

1. ARALIA: Linn.

Calyx 5-toothed or entire. *Corol* 5-petalled. *Stamens* 5, often more. *Styles* 5, spreading. *Berry* 5—10-seeded, crowned with the styles.—Umbels often with small involucre.

Pentandria. Pentagynia.

1. *A. nudicaulis* Linn.: nearly stemless; leaf mostly solitary, tri-quinate; leaflets sessile, oblong-oval, acute, serrate, smooth; scape naked, shorter than the leaf, 3-cleft at the top; umbels few, small, on long peduncles, without involucre.

HAB. Rocky woods. Can. to Car. N. to Arc. Amer. W. to Rocky mountains. June, July. 2f.—*Root* thick and creeping, aromatic. *Flowers* small, 3-umbelled, greenish. *Wild Sarsaparila.*

2. *A. racemosa* Linn.: stem herbaceous, branched; petioles 3-parted; divisions ternate and quinate; leaflets ovate, often cordate, acuminate, sharply serrate, mostly smooth; umbels numerous, compound, in large axillary panicles; involucre small, few-leaved.

HAB. Woods. Can. to Car. W. to Rocky mountains. June—Aug. ½.—*Stem* 3—4 feet high. *Flowers* white.—The root is highly aromatic, and is sometimes used for medicinal purposes. *Spikenard.*

3. *A. hispida* Mich.: low, suffruticose; stem and petioles hispid; leaves doubly pinnate; leaflets ovate, sharply serrate, unarmed; umbels axillary and terminal, on long peduncles.

HAB. Rocky woods. Can. to Virg. July. ½.—*Stem* a foot and a half high, with stiff and thick bristles at the base. *Flowers* greenish-white. *Wild Elder.*

4. *A. spinosa* Linn.: arborescent; stem and leaves spinous; leaves doubly pinnate; leaflets ovate-acuminate, sessile; umbels numerous, in compound panicles; involucre small, few-leaved.

HAB. Fertile woods. Penn. to Geor. W. to Miss. Aug., Sept. ½.—*Shrub* 8—12 feet high, with the leaves crowded at the summit. *Flowers* white, in very large terminal panicles.—A watery infusion of the bark is said to be both emetic and cathartic. *Ell. Sk. i. 373.* *Angelica Tree.*

2. PANAX: Linn.

Calyx with the margin very short and obsoletely 5-toothed. *Petals* 5. *Stamens* 5, inserted under the margin of the disk and alternating with the sepals. *Styles* 2—3, short. *Fruit* fleshy, compressed, orbiculate or didymous, 2-celled; cells 1-seeded.—Flowers in simple umbels, polygamous.

Pentandria. Digynia.

1. *P. quinquefolium* Linn. : root fusiform ; stem angular ; leaves ternate-quinate ; leaflets oval, acuminate, petioled, serrate ; peduncles shorter than the petioles ; styles and seeds 2.

HAB. Mountains. Can. to Geor. June. 2l.—Stem 12 inches high. Flowers greenish.—Highly esteemed by the Chinese for its supposed medicinal properties.—*Big. Med. Bot.* ii. 82.

Ginseng.

2. *P. trifolium* Linn. : root tuberous, roundish ; stem simple, smooth ; leaves ternate ; leaflets subsessile, oblong-lanceolate, serrate ; styles often 3 ; berry 3-seeded.

HAB. Woods. Can. to Geor. May. 2l.—Stem 4—6 inches high. Leaves ternate or quinate.

Dwarf Ginseng.

ORDER LX. HAMAMELIDEÆ. *De Cand. Lind.*

Calyx superior, in 4 pieces. *Petals* 4, linear, with a valvular æstivation. *Stamens* 8, of which 4 are alternate with the petals, anthers turned inwards, 2-celled, each all opening by a valve which is finally deciduous, and 4 are sterile, and placed at the base of the petals. *Ovary* 2-celled, inferior. *Styles* 2. *Fruit* half inferior, capsular, usually opening with two septiferous valves. *Seeds* pendulous. *Embryo* in the midst of fleshy albumen.

Shrubs, with deciduous alternate leaves and small axillary flowers.

1. HAMAMELIS. *Linn.*

Calyx 4-lobed, with 2—3 scales (an involucre) externally at base. *Petals* 4, long, ligulate, alternating with the lobes of the calyx. *Stamens* 4, with very short filaments. *Capsule* coriaceous, 2-celled, 2-valved at the top ; valves bifid.

Tetrandria. Digynia.

H. virginica Linn : leaves ovate, acute, toothed, cordate, with the sinus small ; flowers in axillary clusters.

b. parvifolia Nutt. : leaves oblong-ovate ; upper part undulately and coarsely crenate ; under surface pubescent, somewhat hirsute ; segments of the calyx oblong ; stamens and perigynous filaments often nearly equal.

HAB. Woods. Can. to Flor. Oct., Nov. 7.—Shrub 6—12 feet high. Flowers yellow and continue during a great part of the winter.—Var. *b.* is found on mountains in Penn. and is smaller than the common variety. Nutt.

Witch-hazel.

ORDER LXI. CORNEÆ. *De Cand.*

Calyx 4-lobed. *Petals* 4, oblong, broad at the base, regular, inserted on the top of the tube of the calyx ; æstivation

valvate. *Stamens* 4, alternate with the petals, inserted with them; *anthers* 2-celled. *Ovary* closely cohering with the tube of the calyx, 2-celled; *ovules* pendulous, solitary; *style* filiform; *stigma* simple. *Fruit* fleshy, crowned by the remains of the calyx, 2-celled, (or rarely 1-celled by abortion,) endocarp thick and bony. *Seeds* solitary, pendulous; *albumen* fleshy; *embryo* straight; *radicle* superior, shorter than the oblong *cotyledons*.

Trees, shrubs or herbs. Leaves opposite, rarely alternate.

1. CORNUS. Linn.

Calyx with the tube adnate to the ovary, the limb very small and 4-toothed. *Petals* 4, oblong. *Stamens* 4. *Style*

1. *Drupe* with a 2-celled nut. *Tetandria. Monogynia.*

* *Flowers capitate, surrounded by an involucre.*

1. *C. canadensis* Linn.: herbaceous; lower leaves opposite, small; upper ones verticillate, veined; leaves of the involucre ovate, acuminate, white; flowers numerous, very small, in a terminal head; drupe globose.

HAB. Woods. Arc. Amer. to Car. May, June. 2f.—Stem 6 inches high. *Involucre* white. *Flowers* reddish-white. *Drupe* red.

2. *C. florida* Linn.: arborescent; leaves opposite, ovate-acuminate, entire, ribbed; leaves of the involucre 4, large, obcordate, nerved, white; flowers in terminal heads.

HAB. Woods. Can. to Car. May, June. 2.—A tree 15—20 feet high. *Flowers* greenish-yellow. *Involucre* very large, white. *Drupe* scarlet. Medicinal. *Big. Med. Bot.* ii. 73.

Dog Wood.

** *Flowers naked, in cymes.*

† *Leaves opposite.*

3. *C. circinata* L'Herit.: branches warty; leaves on short petioles, broad-oval, acuminate, white-downy beneath; cymes crowded, depressed; drupe globose.—*C. tomentulosa* Mich.—*C. rugosa* Lam.

HAB. Banks of streams. Can. to Virg. June, July. 2.—Shrub 6—8 feet high. *Leaves* broad, waved on the edges. *Flowers* white. *Drupe* blue.

4. *C. sericea* L'Herit.: branches expanded; leaves ovate, acuminate, the under surface clothed with a silky ferruginous down; cymes depressed, woolly.—*C. lanuginosa* Mich.—*C. alba* Walt.

HAB. Banks of streams. Can. to Car. June. 2.—Shrub 5—10 feet high. *Leaves* oblong, sometimes slightly cordate. *Drupe* bright blue.

5. *C. sanguinea* L'Herit. : branches straight ; leaves ovate, green on both sides, pubescent beneath ; cymes expanding.

HAB. Low grounds. Can. to Car. June, July. ♀.—Shrub 8—12 feet high. Branches pubescent when young. Leaves broad, often oval. Drupe dark brown.

6. *C. stricta* L'Herit. : branches stiff and straight, fastigiate ; leaves ovate-lanceolate, acuminate, entire, green on both sides, somewhat naked ; cymes paniced.—*C. fastigiata* Mich.—*C. sanguinea* Walt.

HAB. Banks of streams. Can. to Car. June. ♀.—Shrub 8—12 feet high, stoloniferous. Cymes naked, sometimes paniculate. Flowers white. Drupe blue.

7. *C. alba* L'Herit. : branches recurved, smooth ; leaves broad-ovate, acute, pubescent, hoary beneath ; cymes depressed, slightly pubescent.—*C. stolonifera* Mich.

HAB. Wet woods. Can. and N. S. N. to Arc. Amer. May—July. ♀.—Shrub 6—10 feet high. Cymes small. Drupe white or lead-coloured.

8. *C. paniculata* L'Herit. : branches erect ; leaves ovate, acuminate, sometimes lanceolate-ovate, hoary beneath ; cymes paniced.—*C. racemosa* Lam.

HAB. Wet woods. July. ♀.—Shrub 6—10 feet high. Flowers in compact panicles, white. Drupe white, nearly globose.

†† Leaves alternate.

9. *C. alternifolia* Linn. : branches warty ; leaves alternate, ovate, acute, hoary beneath ; cymes depressed, expanding.

HAB. Shady woods. Can. to Car. June. ♀.—Small tree, 15—20 feet high. Leaves on slender petioles. Drupe purple.

ORDER LXII. LORANTHACEÆ. De Cand.

Calyx with 2 bracts at base. *Petals* 4—8, more or less united ; æstivation valvate. *Stamens* as many as the petals, and opposite to them. *Ovary* 1-celled ; *ovule* pendulous ; *style* 1 or none ; *stigma* simple. *Fruit* fleshy, 1-celled ; endocarp membranaceous. *Seed* 1, pendulous ; *embryo* straight in the axis of fleshy *albumen* ; *radicle* superior, next to the hilum.

Shrubs, almost parasitical. *Leaves* fleshy, entire, opposite, rarely alternate or wanting.

1. VISCUM. Linn.

Flowers monoecious or dioecious. *Calyx* with the margin entire or a little prominent. STERILE FL. *Petals* 4, (rarely 3 or 5) united at base. *Anthers* 4, adnate with the petals.

FERTILE FL. *Petals* 4, distinct. *Germ* crowned with the margin of the calyx. *Stigma* 1, obtuse, sessile. *Berry* globose, mucilaginous, 1-seeded. *Dioecia. Tetrandria.*

V. flavescens Pursh: branches terete, opposite and verticillate; leaves cuneate-obovate, 3-nerved; spikes axillary, solitary, about as long as the leaves; sterile flowers mostly trifid.—*V. verticillatum* Nutt.

HAB. Parasitic on trees. N. J. to Car. and throughout the valley of the Mississippi. *Berries* white and diaphanous. *Mistletoe.*

ORDER LXIII. CAPRIFOLIACEÆ. *De Cand.*

Calyx with its limb 5- (very rarely 4-) lobed. *Corol* monopetalous, lobed, sometimes irregular, the divisions alternate with those of the calyx. *Stamens* as many as the lobes of the corol, and (sometimes 1 abortive) alternating with them; *filaments* subulate; *anthers* ovate, 2 celled. *Ovary* cohering with the calyx, 3- rarely 4—5-celled; *ovules* few in each cell, pendulous; *style* 1, exserted. *Stigmas* as many as the cells. *Fruit* crowned by the limb of the calyx, fleshy, or rarely almost dry, 1 or many-celled. *Seeds* solitary, in pairs or several; *embryo* straight, in fleshy *albumen*; *radicle* superior.

Shrubs, with opposite *leaves* destitute of stipules. *Flowers* terminal, corymbose or axillary.

1. SAMBUCUS. *Linn.*

Calyx minute, 5-cleft. *Corol* subrotate, 5-cleft, with the lobes obtuse. *Stamens* 5. *Style* none. *Stigmas* 3, sessile. *Berry* roundish, 1-celled, 3—5-seeded.

Pentandria. Trigynia.

1. *S. canadensis* Linn.: stem frutescent; leaves pinnate; leaflets 4 or 5 pairs, oblong-oval, acuminate, smooth and shining; nerves and petioles smooth; stipules wanting; cymes 5-parted, lax.

HAB. Wet grounds. Can. to Car. May, June. ♀.—*Shrub* 5—10 feet high. *Leaves* sometimes bipinnate. *Flowers* white. *Fruit* oval, deep purple. *Common Elder.*

2. *S. pubens* Mich.: stem frutescent; leaves pinnate; leaflets in 2 or 3 pairs, oval-lanceolate and with the petioles pubescent beneath; cymes dense, paniced or racemose.—*S. pubescens* Pers.

HAB. Mountains. Can. to Car. June, July. ♀.—*Shrub* 6—8 feet high. *Flowers* white. *Fruit* small, red.

2. VIBURNUM. *Linn.*

Calyx with the limb small, 5-toothed and persistent. *Corol* rotate subcampanulate or tubular, 5-lobed. *Stamens* 5,

equal. *Stigmas* 3, sessile. *Berry* ovate or globose, 1-seeded, crowned by the teeth of the calyx.

Pentandria. Tryginia.

1. *V. prunifolium* Linn.: branches spreading, smooth; leaves obovate, nearly round and oval, very smooth, acutely serrate; petioles winged; cymes large, lateral; corol large.

HAB. Woods. N. Y. to Car. June. ♀.—*Shrub* or small tree, 8—15 feet high. *Flowers* large, white. *Fruit* oval, dark blue.

2. *V. pyriforme* Lam.: leaves ovate-oblong, somewhat acute, subserrate, smooth; petioles naked; cymes large, spreading, on angular peduncles; fruit ovate-oblong.

HAB. Mountains. N. S. May, June. ♀.—*Shrub* 5—10 feet high. *Flowers* white, on large spreading cymes. *Fruit* red.

3. *V. lentago* Linn.: smooth; leaves broad-ovate or oval, acuminate, sharply serrate; petioles with waved margins; cymes terminal, sessile; flowers small.

HAB. Rocky banks of streams. N. Y. to Geor. June. ♀.—*Shrub* 10—15 feet high. *Flowers* small, white. *Fruit* black.

4. *V. nudum* Linn.: leaves oval-oblong, slightly acuminate, smooth above, veins and margins pubescent beneath, obsolete crenulate; petioles naked; cymes peduncled; flowers small, crowded; fruit oval, dark blue.—*V. squamatum* R. & S.

HAB. Swamps. Can. to Geor. June. ♀.—*Shrub* 8—12 feet high. *Flowers* white. *Fruit* black.

5. *V. lantanoides* Mich.: branches flexuous and often procumbent; leaves orbicular-cordate, abruptly acuminate, unequally serrate; nerves and petioles purverulent-tomentose; cymes closely sessile; fruit ovate.—*V. lantana* var. *grandiflorum* Ait.

HAB. Mountains. Can. and N. S. May, June. ♀.—*Shrub* 4—8 feet high. *Fruit* red, black when ripe. *Hobble Bush.*

6. *V. dentatum* Linn.: nearly smooth; leaves on long petioles, orbicular-ovate, with coarse serratures, plaited; axils of the veins pubescent beneath; cymes large, terminal, peduncled; fruit nearly globose, small.—*V. dentatum* var. *glabellum* Mich.

HAB. Moist woods. Can. to Car. June. ♀.—*Shrub* 8 feet high. *Flowers* white, in a large expanding cyme. *Fruit* blue, small. *Arrow-wood.*

7. *V. pubescens* Pursh: pubescent; leaves on very short petioles, ovate, subcordate, acuminate, dentate-serrate, villous beneath; cymes pedunculate; fruit oblong.—*V. dentatum* var. *semitomentosum* Mich.

HAB. High grounds. N. Y. to Car. June. ♀.—*Shrub* 6 feet high. *Flowers* in a small cyme.

8. *V. acerifolium* Linn.: leaves subcordate, 3-lobed, acutely serrate, pubescent beneath; petioles without glands, hairy; cymes on long peduncles; fruit oval, compressed.

HAB. Woods. N. Y. to Car. May, June. ♀.—Shrub 4—8 feet high. Flowers white. Fruit black.

9. *V. oxycoccus* Pursh: leaves 3-lobed, acute at the base, 3-nerved; lobes divaricate, acuminate, remotely and obtusely toothed; petioles glandular; cymes radiate; flowers of the ray large and abortive.—*V. opulus* var. *americana* Ait.—*V. opuloides* Muhl.

HAB. Woods. Can. and N. S. N. to Arc. Amer. May, June. ♀.—Shrub small, with spreading branches. Fruit large, subglobose, red, of an agreeable acid resembling that of cranberries.
Tree Cranberry.

10. *V. edule* Pursh: leaves 3-lobed, rather obtuse at the base, 3-nerved; lobes very short, with acuminate-dentate serratures; petioles glandular; cymes radiate.—*V. opulus* var. *edule* Mich.

HAB. Banks of rivers. Can. and N. Y. N. to Arc. Amer. July. 2f.—A smaller and more upright shrub than the preceding; berries of the same colour and size, but when completely ripe more agreeable to eat. Pursh.

3. TRIOSTEUM. Linn.

Calyx 5-cleft; lobes linear-lanceolate, as long as the corol. *Corol* tubular, subequally 5-lobed, gibbous at base. *Stamens* 5, included. *Stigma* capitate. *Berry* 3-celled, 3-seeded, crowned by the calyx. *Pentandria. Monogynia.*

T. perfoliatum Linn.: leaves connate, spatulate, lanceolate, acuminate, pubescent beneath; margin undulate; flowers 1—3 in the axils of the leaves, sessile.—*T. majus* Mich.

HAB. Rocky woods. N. Y. to Car. June. 2f.—Stem 2—3 feet high. Flowers purple. Medicinal. *Big. Med. Bot. i. 90.*
Fever Root.

4. DIERVILLA. Tourn.

Calyx oblong, 5-cleft, bibracteate at base. *Corol* funnel-form, 5-cleft, spreading, much longer than the calyx. *Stamens* 5, somewhat exserted. *Stigma* capitate. *Capsule* oblong, acute, not crowned, 1-celled, many-seeded.

Pentandria. Monogynia.

D. tournefortii Mich.: peduncles axillary and terminal, dichotomous, 2—3-flowered; leaves opposite, ovate, on short petioles, serrate, acuminate, smooth.—*D. lutea* Pursh.—*D. canadensis* Muhl.—*Lonicera diervilla* Linn.

HAB. Rocky woods. Throughout the U. S. June. ♀.—Shrub 2—3 feet high. *Corol* yellow.

5. LONICERA. De Cand.

Calyx 5-toothed. *Corol* tubular, campanulate or funnel-

form, 5-cleft, often irregularly. *Stamens* 5. *Style* filiform. *Stigma* capitate. *Berry* 3-celled, few-seeded.

Pentandria. Monogynia.

* *Flowers* capitate-verticillate. *Berry* solitary, 3-celled, crowned by the calyx. LONICERA.

1. *L. flava* Sims : leaves ovate, glaucous beneath, with a cartilaginous margin; upper ones connate-perfoliate; spikes verticillate, terminal; corol ringent; segments oblong, obtuse.—*Caprifolium flavum* Ell.—*C. fraseri* Pursh.

HAB. Catskill mountains, N. Y. S. to Car. June, July. $\frac{1}{2}$.—*Shrub* twining, very smooth. *Flowers* bright yellow.

Yellow Honeysuckle.

2. *L. hirsuta* Eat. : leaves broad ovate and obovate, pubescent and ciliate, glaucous beneath; upper ones connate-perfoliate, nearly smooth; spikes verticillate, terminal, subcapitate, glandular-pubescent.—*Caprifolium pubescens* Goldie.

HAB. Rocky woods. N. S. June. $\frac{1}{2}$.—*Shrub* climbing. *Flowers* yellow, pubescent. *Berries* orange. Distinct from the preceding.

Rough Woodbine.

3. *L. parviflora* Lam. : leaves deciduous, glaucous beneath, all connate-perfoliate; spikes verticillate, in heads, subsessile; corol ringent; gibbous at base; filaments bearded.—*Caprifolium parviflorum* Pursh.—*C. bracteosum* Mich.

HAB. Rocky woods. N. Y. to Car. N. to Subarc. Amer. June, July. $\frac{1}{2}$.—*Shrub* twining. *Flowers* yellow, smaller than in either of the preceding.

4. *L. grata* Ait. : leaves perennial, obovate, slightly mucronate, reticulate and paler beneath; upper ones connate-perfoliate; spikes verticillate, approximate; corol ringent, with the tube long.—*Caprifolium gratum* Pursh.

HAB. Mountains. N. Y. to Car. June—Sept. $\frac{1}{2}$.—*Shrub* climbing or erect. *Flowers* scarlet.

5. *L. sempervirens* Ait. : leaves oblong, glaucous beneath, shining above, the upper ones connate-perfoliate; spikes verticillate, somewhat naked, terminal; corol nearly equal, with the tube ventricose above.—*Caprifolium sempervirens* Mich.

HAB. Stony dry woods. N. Y. to Car. May—Aug. $\frac{1}{2}$.—*Shrub* climbing. *Leaves* evergreen. *Flowers* crimson.

** *Pedicels* axillary, in pairs. *Berries* in pairs, distinct or more or less connate, 2-celled, many-seeded. XYLOSTEUM.

6. *L. ciliata* Muhl. : stem erect; leaves opposite, ovate and subcordate, ciliate on the margin, younger ones villous beneath; tube of the corol calcarate at base, ventricose above; segments short, acute; style exerted; berries distinct.—*Xylosteum ciliatum* Pursh. Torr.

HAB. Hills and rocks. Can. and N. S. May, June. ♀.—*Shrub*
2—4 feet high. *Corol* yellow, long, bilabiate. *Berries* ovate,
red. *Fly Honeysuckle.*

7. *L. villosa* Muhl.: leaves oblong and oval, obtuse; the younger ones as well as the corol villous; peduncles much shorter than the flower; berries coadnate.—*Xylosteum villosum* Mich.—*X. solonis* Eat.—*X. oblongifolium* Goldie.

HAB. Mountains. Hudson's bay to N. J. May. ♀.—*Shrub*
2—4 feet high. *Flowers* axillary, yellow. *Berries* red or purple.

6. SYMPHORIA. Pers.

Calyx minute, 4—5-toothed. *Corol* funnel-form, subsequently 4—5-lobed. *Stamens* 5, scarcely exerted. *Stigma* subglobose. *Berry* crowned by the calyx, 4-celled, 4-seeded; 2 of the cells sometimes abortive. *Pentandria. Monogynia.*

1. *S. glomerata* Pursh: racemes axillary, capitate, glomerate; leaves opposite, ovate, on short petioles; flowers small, numerous.—*S. vulgaris* Mich.—*Symphoricarpos vulgaris* De Cand.

HAB. Sandy fields. Penn. to Car. July, Aug. ♀.—*Shrub* 3—4 feet high. *Corol* red and yellow. *Berries* purple.

2. *S. racemosa* Pursh: racemes terminal; corol bearded within; leaves elliptical ovate, opposite.—*Symphoricarpos racemosus* Mich.

HAB. Niagara Falls. N. Y. W. to Miss. July. ♀.—*Shrub* 2—3 feet high. *Corol* pale red. *Berries* large, white.

7. LINNÆA. Gron.

Calyx with the tube ovate; limb 5-parted; segments lanceolate-subulate. *Corol* turbinate, subcampanulate, 5-lobed. *Stamens* 4, subdidynamous, included. *Stigmas* globose. *Berry* dry, small, ovate-globose, 3-celled, (one cell only bearing a perfect seed.) *Tetrandria. Monogynia.*

L. borealis Gron.

HAB. Woods and hills. N. S. N. to Arc. Amer. July. 2f.—Evergreen, creeping. *Leaves* opposite, on short petioles, round-ovate, crenate, slightly hairy. *Peduncles* erect, long. *Flowers* 2, drooping, pedicelled, white or pale red. *Twin Flower.*

ORDER LXIV. RUBIACEÆ. De Cand.

Tube of the *calyx* adhering to the ovary; the limb variable, truncate or lobed, consisting of as many sepals as petals, rarely with accessory intermediate teeth. *Petals* 4—5, rarely 3—8, united, inserted on the top of the tube of the calyx. *Stamens* as many as the lobes of the corol and alternate with them; *anthers* oval, 2-celled, turned inwards. *Ovary* 2—many

celled, (by abortion 1-celled) crowned by a fleshy urceolate disk; *style* single, sometimes partly divided; *stigmas* usually 2, rarely several. *Fruit* splitting into 2 cocci, or capsular, or baccate, or drupaceous, 2 or many-celled. *Seeds* one or many in each cell. *Albumen* copious, horny or fleshy; *embryo* straight or slightly curved; *radicle* turned to the hilum; *cotyledons* leafy.

Trees, shrubs or herbs. *Leaves* simple, entire, opposite, rarely verticillate.

1. HEDYOTIS. Linn.

Calyx 4-toothed, or 4-parted. *Corol* tubular, bearded at the throat, 4-parted. *Stamens* 4, somewhat exserted. *Capsule* ovate, 2-celled, opening transversely at the top, many-seeded; dissepiment contrary to the valves.

Tetrandria. Monogynia.

H. glomerata Ell.: stem procumbent, assurgent, pubescent; leaves opposite, lanceolate, attenuate at base, pubescent; flowers in clusters, sessile, axillary and terminal.—*H. auriculata* Walt.—*Oldenlandia glomerata* Mich.

HAB. Damp grounds. N. J. to Car. Aug. ☉?—Stem 1—3 inches high. *Flowers* white, minute, in clusters forming whorls.

2. MITCHELLA. Linn.

Flowers by pairs upon the same germ, superior. *Calyx* 4-toothed. *Corol* funnel-form; tube cylindric; limb 4-parted, spreading, villous on the inner side. *Stamens* 4, adnate to the tube, scarcely exserted. *Stigma* 4-cleft. *Berry* by the union of 2 germs, didymous, 4-seeded.

Tetrandria. Monogynia.

M. repens Linn.: stem branched, smooth, creeping; leaves opposite, petioled, round or ovate, cordate at the base, smooth, very entire; flowers terminal, in pairs on each germ; calyx minute.

HAB. Woods, among dried leaves. Can. to Geor. June, July.

U.—A small, evergreen, creeping plant. *Flowers* white, hairy within, fragrant. *Berries* red. *Partridge Berry.*

3. CEPHALANTHUS. Linn.

Common *calyx* none; *proper* superior, small and angular, 4-cleft. *Corol* tubular, slender, 4-cleft. *Style* much exserted. *Stigma* globose. *Capsule* 2-celled, 2-seeded, (mostly 2 partite.) *Receptacle* globose, hairy.—Flowers in a globose head.

Tetrandria. Monogynia.

C. occidentalis Linn. : leaves opposite or ternate, ovate or oval, acuminate ; peduncles much larger than the head of flowers.

HAB. Borders of ponds and streams. Can. to Flor. W. to Miss. July, Aug. ♀.—*Shrub* 4—5 feet high, branched. *Leaves* ovate-oblong, petioled, smooth. *Flowers* in heads, white.

Button Bush.

4. DIODIA. Linn.

Calyx with the tube ovate or obovate, often 8-nerved ; 2—4-toothed. *Corol* funnel-form, 4-lobed. *Stamens* 4, exserted or included. *Style* bifid or undivided. *Fruit* crowned with the calyx, 2-celled, bipartite ; *carpels* 1-seeded.

Tetrandria. Monogynia.

1. *D. teres* Walt. : stem procumbent, diffuse, terete, hairy ; leaves linear-lanceolate, nearly smooth, margin and keel serrulate ; stipules with numerous long bristles ; flowers axillary, solitary, alternate ; corol bearded within ; fruit ovate, pubescent, crowned by the 4-lobed calyx.—*Spergacoe diodina* Mich.

HAB. Sandy fields. N. J. to Car. Aug. ☉.—*Stem* 6—8 inches long. *Flowers* opposite, often clustered, white or pale purple.

2. *D. virginica* Linn. : smooth ; stem procumbent, nearly terete ; leaves lanceolate, opposite, acute, scabrous on the margin ; corol nearly smooth within ; fruit oblong, smooth, crowned by the 2-lobed calyx.

HAB. Damp soils. Md. to Car. Sept. 2f.—*Stem* smooth, slender, purple. *Flowers* white, solitary, opposite.

5. GALIUM. Linn.

Calyx with the tube ovate-globose or oblong ; *limb* nearly wanting. *Corol* 4-parted, rotate, (very rarely 3-parted.) *Stamens* short. *Styles* 2, short. *Fruit* didymous, roundish, rarely oblong.

Tetrandria. Monogynia.

* *Fruit* smooth. *Flowers* yellow.

1. *G. verum* Linn. : leaves about 8 in a whorl, linear, grooved, entire ; flowers in dense panicles.

HAB. Pastures. N. S. June, July. 2f.—*Stem* erect, 9—18 inches high, slender, branched. *Leaves* linear, deflexed, roundish. *Flowers* yellow. Introduced ? *Yellow Bedstraw.*

** *Fruit* smooth. *Flowers* white.

2. *G. trifidum* Linn. : stem procumbent, scabrous downward ; leaves 4—6 in a whorl, linear, obtuse, scabrous on the margin and midrib ; peduncles smooth, spreading, 3-cleft ; corol 3—4-cleft.—*G. claytoni* Mich.

HAB. Swamps and wet fields. Can. to Car. N. to Arc. Amer. June, July. 2f.—*Stems* procumbent and assurgent, much branch-

ed. *Flowers* in threes, white, very minute.—It varies with obovate-cuneate leaves. *Small Cleavers.*

3. *G. tinctorium* Linn. : stem diffuse, smoothish ; leaves linear, somewhat acute ; those of the stem in sixes ; of the branches in fours ; peduncles terminal, elongated, mostly 3-flowered.

HAB. Wet woods. N. S. June—Aug. 2l.—*Stem* weak, branching. *Leaves* very narrow. *Corol* white, mostly 4-cleft. Used as a red dye. *Dyer's Cleavers.*

4. *G. obtusum* Big. : stem smooth, procumbent ; leaves in fours, oblanceolate, obtuse, rough on the edge and midrib ; peduncles slender, 3-flowered ; lobes of the corol acute ; fruit smooth, globose.

HAB. Banks of streams. Mass. Big. July. 2l.—*Stem* much branched, entire, smooth. *Leaves* very obtuse. *Flowers* white. —Plant larger and more open than *G. tinctorium*.

5. *G. asprellum* Mich. : stem diffuse, very branching, aculeate backwards ; leaves in fives and sixes, lanceolate, acuminate, their margins and nerves aculeate ; pedicels short.

HAB. Moist places. Can. to Virg. June, July. 2l.—*Stem* 1—2 feet high. *Flowers* white, minute.

*** *Fruit hispid.*

6. *G. aparine* Linn. : stem weak, branching, aculeate backwards ; leaves 6—8 in a whorl, linear-lanceolate, mucronate, with the keel and margin rough with reflexed prickles ; fruit with hooked bristles.

HAB. Moist woods. N. S. June. ③.—*Stem* 3—4 feet long. *Flowers* white, numerous, on axillary and terminal peduncles.

7. *G. micranthum* Pursh : stem very branching, divaricate, with reflexed prickles ; leaves short, lanceolate, mucronate, smooth, their margin and keel aculeate ; flowering branches divaricate ; pedicels sub-2-flowered, hispid.

HAB. Mountain swamps. Can. and N. J. July. 2l.—*Flowers* white, and very minute. *Fruit* mostly 1-seeded. *Pursh.*

8. *G. brachiatum* Pursh : stem flaccid, elongated, brachiate-ramose ; branches short ; leaves in sixes, oblong-lanceolate, acuminate, smooth, their margin and keel setaceously-ciliate ; flower bearing branches longer than the whorls, divaricate and dichotomous ; pedicels 2-flowered ; fruit with hooked bristles.

HAB. Woods and meadows. N. S. June—Aug. 2l.—*Flowers* white. *Pursh.*—Perhaps not distinct from *G. aparine*.

9. *G. triflorum* Mich. : stem procumbent, smoothish ; leaves in fives and sixes, obovate-lanceolate, mucronate, glabrous, margin scarcely ciliate ; flowering branches long, 3-flowered at the summit ; flowers on short pedicels ; fruit small, hispid.—*G. cuspidatum* Muhl. Ell.

HAB. Moist woods. Can. to Car. July, Aug. 2l.—*Stem* weak, 3—5 feet long. *Flowers* white, very small.

10. *G. punctulosum* Mich. : stem erect, very branching, scarcely pubescent ; leaves in fours, ovate, obtuse, smooth, with pellucid dots ;

margin and nerves pubescent; flowering branches elongated; fruit with hooked bristles.—*G. bermudianum* Pursh not of Linn.?

HAB. In wet places. Penn. to Car. June. 2f.—Stem erect, nearly smooth. Flowers purple.

11. *G. pilosum* Ait.: stem nearly simple, elongated, ascending, with remote joints, hispid; leaves in fours, oval, mucronate, very hairy on every part, nerveless; flowering branches elongated, nearly simple, 3-flowered at the extremity; fruit hairy.—*G. punctulosum* var. *pilosum* De Cand.

HAB. Woods. N. Y. to Car. July, Aug. 2f.—Stem a foot high, rough. Flowers purple.—Probably not distinct from the preceding.

12. *G. circazans* Mich.: stem erect, smooth or slightly pubescent on the angles; leaves in fours, oval, obtuse, smooth; margin and nerves ciliate; peduncles short, divaricate, few-flowered; flowers remote, subsessile, alternate; fruit nodding, with hooked bristles.—*G. boreale* Walt.—*G. brachiatum* Muhl.

HAB. Rocky woods. N. Y. to Car. June, July. 2f.—Stem about a foot high. Flowers purple.

13. *G. lanceolatum* Torr.: stem erect, very smooth, with remote joints; leaves in fours, lanceolate, generally acute, smooth, 3-nerved, margin subciliate; peduncles long, divaricate; fruit sessile, nodding, covered with hooked bristles.—*G. torreyi* Big.

HAB. Rocky woods. N. S. July. 2f.—Stem 12—18 inches high. Flowers purple.—De Candolle considers this a variety of the former.

14. *G. septentrionale* R. & S.: stem erect, branched above, very smooth; leaves in fours, linear-acute or linear-lanceolate, 3-nerved, smooth, margin involute and scabrous; flowers in a divaricate terminal panicle; fruit with minute hooked hairs.—*G. boreale* Pursh. Torr.—*G. strictum* Eat.

HAB. Sandy woods. N. S. Aug. 2f.—Stem 1 1-2—2 feet high. Flowers white, in a terminal crowded panicle.

ORDER LXV. VALERIANEÆ. De Cand. Lind.

Calyx with a limb of various kinds, either membranous or resembling pappus. *Corol* inserted into the top of the ovary, 3—5-lobed, regular or irregular, sometimes calcarate at the base. *Stamens* 1—5, inserted into the tube of the corol and alternate with its lobes. *Ovary* inferior, 1—3-celled; *ovule* solitary, pendulous; *style* filiform; *stigmas* 1—3. *Fruit* dry, indehiscent, with 1 fertile cell and 2 empty ones. *Seed* solitary, pendulous; *embryo* straight, destitute of albumen; *radicle* superior.

Herbs. Leaves opposite, without stipules.

1. VALERIANELLA. *Manch. De Cand.*

Calyx with the limb toothed and persistent. *Corol* not calcarate, regular, 5-lobed. *Stamens* 5. *Stigmas* scarcely divided or trifid. *Fruit* 3-celled, submembranaceous, indehiscent, crowned by the limb of the calyx; 1 or 2 of the cells only fertile. *Triandria. Monogynia.*

V. radiata De Cand.: leaves spatulate-oblong, nearly entire, attenuate at base; fruit oblong, smooth, somewhat 4-sided.—*Fedia radiata Mich. Pursh. Torr.*

HAB. Fields. N. Y. to Car. W. to Miss. May. ☉.—*Stem* a foot high, dichotomous. *Leaves* opposite. *Flowers* small, pale blue, in fastigiate corymbs, with lanceolate bracts at base. *Wild Lamb Lettuce.*

2. VALERIANA. *De Cand.*

Calyx with the limb involute, at length evolved in a deciduous plumose pappus. *Corol* with the tube obconic or cylindric, equal or gibbous at base, limb obtusely, 5-cleft. *Stamens* 3. *Fruit* indehiscent, 1-celled, 1-seeded.

Triandria. Monogynia.

V. sylvatica Rich.?: flowers triandrous, perfect; cauline leaves pinnate, acute; radical ones oblong, entire.

HAB. Spagnous swamps, near Fairhaven, Ver. June, July. 2f. —*Root* consisting of numerous long fibres, having the odour and probably the medicinal properties of *V. officinalis*. *Stem* 2—3 feet high, simple, smooth, erect. *Radical leaves* on long petioles, usually simple, but sometimes lobed at base, varying from lanceolate, to ovate and subcordate; stem leaves pinnate; leaflets in 4—6 pairs with an odd one, ovate oval or somewhat rhomboidal, coarsely but sometimes very sparingly toothed. *Flowers* numerous, reddish-white, perfect, in a large and dense dichotomous corymb. *Corol* gibbous at base, 5-cleft. *Stamens* and *pistil* much exserted. *Capsule* ribbed, as long as the narrow and hispid bracts.—This plant agrees very well with the short description given by Dr. Richardson (*App. to Frank. Jour.*) of *V. sylvatica*, a new species found in Arctic America and Newfoundland, but it may prove distinct. From *V. pauciflora* it appears to differ, although I have had no opportunity of comparing specimens. It was first discovered by Dr. Robbins at the above locality, where I have since found it growing abundantly.

ORDER LXVI. DIPSACEÆ. *De Cand. Lind.*

Calyx with a limb short or elongated, entire or toothed, or pappose. *Corol* tubular, inserted into the calyx; limb oblique, 4—5-lobed, with an imbricate æstivation. *Stamens* usually 4 or 5, alternate with the lobes of the corol; *anthers* distinct.

Ovary inferior, 1-celled, with a single pendulous ovule; *style* 1; *stigma* simple. *Fruit* dry, indehiscent, 1-celled, crowned by the pappus-like calyx; *embryo* straight, in the axis of fleshy albumen; *radicle* superior.

Herbs or *undershrubs*. *Leaves* opposite or whorled. *Flowers* densely capitate or very rarely whorled.

1. DIPSACUS. Linn.

Flowers collected in an ovate or roundish head. *Common calyx* (involucre) foliaceous, many-leaved; *proper* superior, of one leaf. *Corol* tubular, 4-cleft. *Stamens* 4. *Stigma* longitudinal. *Fruit* crowned with the limb of the calyx.

Tetrandria. Monogynia.

D. sylvestris Linn. : leaves opposite, rarely connate; the many-leaved involucre curved upwards; scales of the receptacle straight.

HAB. Fields and waste places. N. S. July. ♂.—*Stem* 3—5 feet high, strong, angular, prickly. *Flowers* blue, in dense oval heads, shorter than the scales of the receptacle. Introduced.

Wild Teasel.

ORDER LXVII. COMPOSITÆ. Adans. Lind.

Calyx with the limb either wanting or membranous, and divided into bristles paleæ or hairs, and called pappus. *Corol* monopetalous, usually deciduous, either ligulate or tubular; in the latter case 4—5-toothed or lobed, with a valvate æstivation. *Stamens* 5, alternate with the teeth of the corol; *filaments* distinct; *anthers* cohering in a cylinder. *Ovary* inferior, 1-celled, with a single erect ovule; *style* single; *stigmas* 2, distinct or united. *Fruit* a small indehiscent dry pericarp, (*acine*) crowned with the limb of the calyx. *Seed* solitary, erect; *embryo* with a taper inferior radicle; *albumen* none.

Herbs or *shrubs*. *Leaves* alternate or opposite, usually simple, without stipules. *Flowers* (called *florets*) collected in dense heads upon a common *receptacle*, surrounded by an *involucre*.

SUBORDER 1. CICHORACEÆ.

OBS. In the arrangement of the genera of this suborder, I have adopted Mr. Don's New Classification of the Cichoraceæ. *Edin. New Phil. Jour.* vi. 305. Wherever he has enumerated the species of his new genera, I have quoted him as the authority; although he has not in any case given specific descriptions.

1. HIERACIUM. Linn. Don.

Involucre imbricate. *Receptacle* subfavose. *Acines* simple at the apex. *Pappus* with the rays numerous, persistent, setaceous-pilose, arranged in one row.—Flowers yellow, solitary or corymbose. *Syngenesia*. *Æqualis*.

* *Stemless*. *Scape* many-flowered.

1. *H. venosum* Linn. : scape hairy at base, smooth and branching above; branches 1-flowered; leaves obovate-oblong, entire, a little hairy above; margins ciliate; veins coloured; involucre smooth.

HAB. Shady woods. Can. to Car. July, Aug. 24.—*Scape* 1—2 feet high, branching towards the summit. *Leaves* all radical, spreading on the ground, coloured with dark red veins. *Flowers* paniced, on slender pedicels, yellow. *Veiny Hawkweed*.

** *Stem leafy, many-flowered*.

2. *H. gronovii* Linn. : radical leaves oblong, obtuse, very entire, ciliate; cauline ones ovate and clasping; flowers in loose racemes; pedicels glandular-pilose; involucre smooth.

HAB. Dry woods. Can. to Car. July, Aug. 24.—*Stem* 2 feet high, nearly naked. *Flowers* yellow, in a long terminal panicle or raceme.—Both Pursh and Elliott have probably taken this for the next.

3. *H. marianum* Willd. : stem erect, villous; leaves obovate-oblong, strigose-villous on the midrib; lower ones slightly toothed; pedicels and involucre hispid.—*H. gronovii* var. *foliosum* Pursh.—*H. scabrum* Mich.

HAB. Woods. Can. to Car. July, Aug. 24.—*Stem* 2 feet high, very rough. *Flowers* in a small irregular panicle, yellow. *Rough Hawkweed*.

4. *H. paniculatum* Willd. : stem erect, leafy, smooth above, whitish tomentose below; leaves lanceolate, oblong, few-toothed, membranaceous, naked; pedicels divaricate, capillary, 1-flowered; bracts setaceous.

HAB. Woods. Can. to Car. July—Sept. 24.—*Stem* slender, 1—2 feet high. *Leaves* thin, paler beneath. *Flowers* small, on long slender pedicels, forming a large panicle.

5. *H. kalmii* Linn. : stem erect, simple, smoothish; leaves sessile, oblong-lanceolate, acuminate, acutely and divaricately toothed; pedicels tomentose, somewhat in the form of an umbel; involucre loose.—*H. virgatum* and *H. fasciculatum* Pursh.

HAB. Rocky woods. Can. and N. S. Aug. 24.—*Stem* 2 feet high. *Leaves* with acute diverging teeth. *Pedicels* axillary and terminal, covered with down, thick, erect.

2. HARPALYCE. Don.

Involucre cylindric, many-leaved, in a single row, with a few very short appressed scales at base. *Receptacle* slightly pit-

ted. *Florets* indefinite. *Stigmas* filiform, somewhat hispid. *Acines* narrow, angled, sulcate, simple at the apex. *Pappus* pilose, stiffly erect, fragile, persistent and coloured, with the rays crowded in a double row, denticulate-scabrous.

Syngenesia. Æqualis.

1. *H. altissima* Don: stem branching; leaves 3-lobed, petioled, angular, denticulate, scabrous on the margin; racemes axillary; flowers nodding; involucre about 5-flowered.—*Prenanthes altissima* Linn. Pursh.

HAB. Woods. Can. to Car. Aug. 24.—Stem 4—6 feet high, branching, glabrous. Flowers in axillary panicles or racemes, yellowish.

2. *H. cordata* Don: stem paniculate above; leaves petiolate, cordate, toothed, ciliate; the floral ones sessile, oblong, very entire; panicle loose, with the flowers somewhat racemose and nodding; involucre 6-leaved, 6—8-flowered.—*Prenanthes cordata* Pursh.

HAB. Woods. N. Y. to Car. Aug. 24.—Stem 4—6 feet high. Leaves ovate-lanceolate, cordate. Flowers in long loose panicles, yellowish.

3. *H. virgata* Don: smooth; stem simple; leaves all lyrate and sinuate, sessile; racemes generally secund; flowers pendulous; involucre 8-leaved, 10-flowered.—*Prenanthes virgata* Mich.

HAB. Sandy fields. N. J. to Car. Aug., Sept. 24.—Stem 2—5 feet high. Flowers in a long terminal raceme, pale-purple.

4. *H. alba* Don: radical leaves angular-hastate, toothed and somewhat lobed; stem-leaves roundish-ovate, toothed and petioled, the upper ones lanceolate; panicle loose; fascicles terminal, nodding; involucre 8-leaved, 9—12-flowered.—*Prenanthes alba* Linn.

b. nana: stem low; lower leaves 3-parted; middle ones hastate, upper ones ovate or lanceolate; sometimes all are entire.—*P. alba* var. *nana* Big. Torr.

HAB. Woods. N. Y. to Car. Aug. 24.—Stem 5 feet high. Flowers in a loose panicle which is composed of small terminal clusters, yellowish-white. Var. *b.* White mountains. Stem 4—15 inches high. Flowers in simple or panicled racemes, purple.

5. *H. serpentaria* Don: leaves toothed, rough; those of the root palmate; of the stem on long petioles, sinuate-pinnatifid, somewhat 3-lobed, the middle segment 3-parted; upper leaves lanceolate; racemes terminal, paniculate, short, nodding; involucre 8-leaved, 12-flowered.—*Prenanthes serpentaria* Pursh.

HAB. Mountain woods. N. Y. to Car. Aug. 24.—Stem 2—4 feet high, nearly glabrous. Flowers in loose terminal panicles, purple.—Resembles *H. alba*, and by Dr. Torrey is placed as a variety of that species. The whole genus, indeed, is so liable to variation, that it may be doubted whether many of the species usually considered distinct, are more than mere varieties. But as

Pursh has apparently investigated it with more attention than any succeeding botanist, I have preferred adopting his views concerning the species. *H. serpentaria* is said to be a cure for the bite of the rattle snake. *Pursh.* *Lion's Foot.*

6. *H. racemosa* Don: stem simple; leaves all undivided, smooth; radical ones oval-lanceolate; cauline ones subclasping; racemes oblong, very hairy, in nodding fascicles; involucre 8—9-leaved, 9—12-flowered.—*Prenanthes racemosa* Mich.

HAB. Can. Mich. N. S. Torr. Sept. 24.—Stem 2 feet high. Flowers purple.

3. LEONTODON. Schreb.

Involucre imbricate, with a few loose scales at base. *Receptacle* naked. *Pappus* simple, stipitate.

Syngenesia. Æqualis.

L. taraxacum Linn.: outer scales of the involucre reflected; leaves runcinate, smooth, the segments lanceolate and toothed; scape 1-flowered.

HAB. Pastures, &c. Throughout the U. S. April—Nov. 24.—Leaves all radical, smooth. Scares often several from each root, with one terminal large yellow flower. Introduced.

Dandelion.

4. OPORINIA. Don.

Involucre deeply many-parted, with a few appressed scales at base. *Receptacle* dotted. *Anthems* bisetose at base. *Acines* somewhat fusiform, compressed, sulcate; furrows transversely rugose. *Pappus* with the rays distinct, in a single row, persistent, plumose, scarioso and dilated at base.—Flowers pedunculate, yellow.

Syngenesia. Æqualis.

O. autumnale Don: scape branching; peduncles scaly; leaves lanceolate, toothed or pinnatifid, smoothish.—*Apargia autumnale* Willd.

HAB. Fields and road sides. N. S. July—Sept. 24.—Scape spreading, branching into a few peduncles which are furnished with a few remote scales. Flowers bright yellow, resembling the *Dandelion*. Introduced.

5. CYNTHIA. Don.

Involucre many-parted; segments in a double row. *Receptacle* scrobiculate. *Anthems* 2-toothed at base, *Stigmas* linear-ligulate, pruinose. *Acines* oval, complanate. *Pappus* double; outer one chaffy, very short; inner pilose, rough.—Flowers yellow.

Syngenesia. Æqualis.

1. *C. amplexicaule* Beck: smooth and glaucous; scape somewhat fleshy, simple or bifid; branches 2—3-flowered; radical leaves sublyrate, spatulate; cauline ones clasping, lanceolate, entire, smooth.—

Krigia amplexicaulis Nutt.—*Troximon virginicum* Pursh.—*Hyoseris amplexicaulis* Mich.

HAB. Wet woods. N. J. to Car. W. to Miss. June. 2f.—*Stem* a foot high, resembling a scape, and divided into long slender branches. *Flowers* solitary at the extremity of the branches, large, orange-yellow.

2. *C. virginica* Beck: glaucous; primary leaves roundish, entire, the rest lyrate, nearly smooth; scape 1-flowered, smooth, at length longer than the leaves.—*Krigia virginica* Linn.—*Hyoseris virginica* Mich.

HAB. Fields and arid soils. Can. to Flor. May—Aug. 6.—*Scape* 2—8 inches high. *Flowers* small, orange-yellow.—This plant continues in flower for some time; during which it varies greatly in the length of the scape. *Krigia dichotoma* of Nuttall can be nothing more than a mere variety.

6. LACTUCA. Linn.

Involucre imbricate, cylindrical; the scales membranaceous at the margin. *Receptacle* naked. *Seeds* smooth. *Pappus* simple, stipitate. *Syngenesia. Æqualis.*

1. *L. elongata* Muhl.: leaves smooth beneath; the lower ones runcinate, amplexicaule; upper ones lanceolate, sessile; flowers in corymbose panicles.

HAB. Woods and road sides. Can. to Car. Aug. Sept. ♂.—*Stem* 3—6 feet high. *Leaves* long, spreading, runcinate, clasping. *Panicle* terminal, composed of small clusters of yellow flowers.—This plant appears on grounds newly burnt over and hence called *Fire Weed.*

2. *L. hirsuta* Nutt.: lower part of the stem and leaves hirsutely pilose; radical leaves lyrate, segments truncate; the upper ones partly runcinate-pinnatifid; flowers in racemes; scales subulate.

HAB. In Pennsylvania. Muhl. Aug. 2f.—*Flowers* yellow and purple.

3. *L. integrifolia* Big.: leaves sagittate, entire, unarmed and clasping; flowers panicled.

HAB. Road sides. N. S. July. ♂.—*Stem* 3—4 feet high, round, smooth and striated. *Leaves* pale beneath. *Flowers* yellow, in a panicle which is more compact than that of *L. elongata*, from which Dr. Bigelow thinks it may be descended. It should not be confounded with the *L. integrifolia* of Nuttall, which is now removed to the genus *Agathysus* of Don.

4. *L. sanguinea* Big.: leaves clasping, runcinate, smooth beneath, with the midrib filamentous; flowers panicled.

HAB. Dry woods. N. S. July, Aug. ♂.—*Stem* 2—3 feet high, erect and smooth, mostly of a reddish-purple colour. *Flowers* panicled, with short acuminate bracts. *Involucre* purple. *Corol* crimson.

5. *L. canadensis* Linn. : leaves lanceolate-ensiform, clasping, toothed ; raceme compound, terminal.—*Sonchus pallidus* Pursh. Torr.

HAB. Woods and road sides. Can. and N. S. July—Sept. 24.
—Stem 2—3 feet high. Flowers small, yellow.

6. *L. villosa* Jacq. : radical leaves slightly runcinate ; those of the stem, ovate, acuminate, petiolate, toothed in the middle ; flowers paniculate ; peduncles somewhat scaly.—*Sonchus acuminatus* Willd.

HAB. Shady woods. Mass. to Car. Aug., Sept. ♂.—Stem 3—4 feet high. Leaves attenuated at base into a winged petiole, hairy beneath. Flowers in a loose terminal panicle, purple. Peduncles with a few ovate ciliate scales. Florets about 15. Pappus stipitate.—Although this plant differs somewhat in its habit from the other species of *Lactuca*, it agrees more nearly with this genus, than with *Sonchus*.

7. AGATHYRSUS. Don.

Involucre many-leaved, terete, closely imbricate ; the inner scales elongated and connivent. *Receptacle* very smooth. *Florets* indefinite. *Anthers* obtusely bidentate at base. *Acines* ancipital-compressed, 5-ribbed on each side, transversely rugulous, somewhat attenuated at the summit ; *disk* epiginous, nearly flat, dilated. *Pappus* very slender, fugaceous, with the rays very numerous and arranged in a triple row—Flowers corymbose paniculate, blue.

Syngenesia. Æqualis.

1. *A. leucophæus* Don : stem virgate and panicled ; leaves runcinate, acuminate ; peduncles scaly ; flowers racemose.—*Sonchus leucophæus* Willd. Pursh. Torr.—*S. spicatus* Lam.

HAB. Woods and road sides. N. S. July—Sept. ♂.—Stem 2 feet high. Flowers bluish-white.

2. *A. floridanus* Don : stem terete ; leaves petioled, lyrate-runcinate, segments oblong, acuminate, toothed ; flowers paniculate ; peduncles somewhat scaly.—*Sonchus floridanus* Linn. Pursh. Torr.

HAB. Woods and road sides. N. S. S. to Car. July—Sept. ♂.—Stem erect, 3—5 feet high. Leaves narrow lanceolate, sometimes with runcinate segments. Flowers in a long slender panicle, small, blue.—Pursh states that this plant is used as a cure for the bite of the rattle snake, in the same manner as *Pre-nanthes serpentaria*, and is called—*Gall of the earth*.

3. *A. macrophyllus* Don : ? leaves lyrate, cordate at base, very hairy beneath ; petioles winged ; flowers paniculate ; peduncles hairy, naked.—*Sonchus macrophyllus* Willd. and the American authors.

HAB. Springy ground. Penn. to Car. Aug., Sept. 24.—Stem 4—7 feet high. Leaves large, lyrate, very hairy beneath. Flowers blue, of the size of *Cichorium intybus*. Root tuberous.

8. SONCHUS. Linn. Don.

Involucre many-leaved, closely imbricate, dilated at base, connivent at the summit. *Receptacle* pitted, scabrous, with the elevated and torn margins of the pits slightly dotted. *Florets* indefinite, the mouth very villous without. *Anthers* acutely bidentate at base. *Stigma* hispid. *Acines* ancipital-compressed, sulcate, transversely rugose, simple at the summit, very soft, capillary, fugaceous; rays very copious, unequal, fasciculately connate at base—Flowers yellow, corymbose, rarely solitary. *Syngenesia. Æqualis.*

1. *S. oleraceus* Linn.: leaves oblong-lanceolate, clasping, slightly toothed and sinuate; involucre smooth; peduncles somewhat tomentose.

HAB. Waste grounds. Can. to Car. July—Sept. ☉.—*Stem* 2—4 feet high, hollow and succulent. *Peduncles* axillary and terminal, covered with a cotton-like down. *Flowers* yellow.—It differs from the generic character in its smooth receptacle. Introduced. *Sow Thistle.*

2. *S. arvensis* Linn.: root creeping; leaves runcinate, denticulate, cordate at base; involucre hispid; peduncles hispid, somewhat umbelled.

HAB. Near cultivated grounds. N. S. 2f.—*Stem* 2 feet high. *Flowers* large, deep yellow. Introduced.

3. *S. spinulosus* Big.: leaves clasping, oblong, waved, prickly; flowers somewhat umbelled.

HAB. Salt marshes. Mass. Aug. ☉.—*Stem* 2 feet high, smooth or slightly hairy. *Leaflets* smooth, with teeth ending in short spines. *Flowers* somewhat umbelled, small, yellow.

9. CICHORIUM. Linn.

Involucre surrounded with leafy scales. *Receptacle* somewhat chaffy. *Pappus* plumose, sessile, unequal, shorter than the acines. *Syngenesia. Æqualis.*

C. intybus Linn.: leaves runcinate; flowers axillary, sessile, in pairs.

HAB. Fields. N. S. July—Sept. 2f.—*Stem* 2—3 feet high, with rough branches. *Flowers* large, blue. Introduced.

Succory.

SUBORDER II. CARDUACEÆ.

10. ARCTIUM. Linn.

Involucre globose, each of its scales with an incurved hook at the extremity. *Receptacle* chaffy. *Pappus* simple, the rays short. *Syngenesia. Æqualis.*

A. lappa Linn.: leaves cordate, petiolate, unarmed.

HAB. Waste grounds. N. S. July, Aug. 2f.—Stem 3—4 feet high. Leaves very large, cordate and wavy. Flowers numerous, purple.—As Dr. Bigelow remarks, “this plant intrudes itself on every one’s acquaintance by the sharp firm hooks at the end of the calyx scales, which attach themselves to the clothes, and serve as a remarkable mechanism for dispersing the seeds.” Introduced. Burdock.

11. CARDUUS. Linn.

Involucre ventricose, imbricate, with spinous scales. *Receptacle* hairy. *Pappus* pilose or plumose, deciduous.

Syngenesia. Æqualis.

* *Leaves decurrent.*

1. *C. lanceolatus* Linn. : stem hairy ; leaves decurrent, pinnatifid, hispid ; the segments divaricate and spinous ; scales of the involucre lanceolate, spreading.—*Cnicus lanceolatus* Willd.—*Cirsium lanceolatum* Spreng.

HAB. Road sides. N. S. July—Sept. ♂.—Stem 2—4 feet high. Leaves woolly beneath, the segments armed with long and acute spines. Flowers terminal, purple, middle-sized.

** *Leaves sessile.*

2. *C. altissimus* Linn. : leaves sessile, oblong-lanceolate, scabrous, tomentose beneath, dentate-ciliate ; radical ones pinnatifid ; involucre ovate, bracteate ; scales ovate, lanceolate, spinous, appressed.—*Cnicus altissimus* Willd.

HAB. Old fields. Penn. to Car. June—Sept. 2f.—Stem 3—8 feet high, and on the Missouri, according to Mr. Nuttall, 12—18 feet. Flowers terminal, large, purple.

3. *C. arvensis* Linn. : stem paniculate ; leaves sessile, pinnatifid, spinous ; involucre ovate or globose ; scales ovate-lanceolate, mucronate, appressed.—*Cnicus arvensis* Willd.

HAB. Fields and roads sides. N. S. July. 2f.—Root creeping. Stem 2—3 feet high, many-flowered. Leaves very thorny. Flowers terminal, small, purple.—A very troublesome weed. Introduced. Canada Thistle.

4. *C. muticus* Nutt. : leaves all pinnatifid, woolly beneath ; segments spinulose, somewhat lanceolate, acute ; branches naked, 1-flowered ; involucre globose ; scales unarmed.—*Cnicus muticus* Pursh.—*Cirsium muticum* Mich.

HAB. Mountains and low grounds. N. Y. to Car. Aug., Sept. 3.—Stem 2—4 feet high, branching above. Flowers purple, middle-sized. Lower scales of the involucre spinous ; upper ones simple, acute.—*C. glaber* of Nuttall appears to be only a variety of this species.

5. *C. virginianus* Willd. : stem attenuated, mostly 1-flowered ; leaves sessile, lanceolate, margin revolute, distantly and spinosely serrate,

smooth above, tomentose beneath ; involucre ovate ; scales appressed, shortly mucronate, carinate.—*Cnicus virginianus* Pursh.—*Cirsium virginianum* Mich.

HAB. Woods. Penn. to Car. July—Sept. 2f.—Stem 2—3 feet high, covered with a white down, especially towards the summit. *Flowers* solitary, terminal, purple.

6. *C. discolor* Nutt. : stem divaricately branched ; leaves lanceolate, sessile or clasping, more or less deeply pinnatifid, smooth above, tomentose beneath ; segments 2-lobed, ciliate and spinous ; involucre subglobose ; scales ovate, spinous.—*Cnicus discolor* Muhl.

HAB. Margins of swamps. N. J. to Car. July, Aug. ♂.—Stem 3—6 feet high, hairy and tomentose ; branches leafy. *Leaves* long. *Flowers* solitary, middle-sized, purple.

7. *C. pumilus* Nutt. : stem hairy, few-flowered ; leaves clasping, green on both sides, oblong-lanceolate and pinnatifid ; segments irregularly lobed, ciliate and spinous ; involucre large, and somewhat globose, naked ; scales appressed, lanceolate, acuminate, spinous.

HAB. Dry fields. N. S. ♂.—Stem 1—2 feet high, erect or subdecumbent. *Leaves* large, the lowest often 12 inches long. *Flowers* few, very large, purple. *Pappus* more than an inch in length.—Nuttall describes a variety of this species with the stem simple, 1-flowered, and the leaves densely margined with spines. It occurs on the banks of the Hudson near the city of New-York, and is called var. *hystrix*.

8 *C. spinosissimus* Walt. : leaves sessile, pinnatifid, acutely incised, very spinous, woolly beneath ; flowers crowded, bracteate ; bracts very spinous, the spines generally in pairs ; involucre unarmed.—*Cnicus horridulus* Pursh.

HAB. Fields. N. S. to Car. July—Sept. 2f.—Stem 2—3 feet high, hollow. *Flowers* axillary and terminal, large, yellowish-white, (pale purple Elliott.) *Bracts* 20 or 30 round the base of each flower, on the outer ones spines in pairs. *Scales* of the involucre lanceolate, very acute, but scarcely spiny.

9. *C. glutinosus* Beck : leaves pinnatifid, with divaricate segments ; involucre ovate, with unarmed glutinous scales.—*Cnicus glutinosus* Big.

HAB. Damp soils. Mass. Aug., Sept. ♂.—Stem 4—6 feet high, branching. *Leaves* sessile, somewhat clasping. *Flowers* small, on slender stalks, deep purple.—Allied to *C. muticus*, but differs by its leaves and by the ovate glutinous scales of the involucre.

12. ONOPORDON. Linn.

Involucre ventricose, with the scales spreading and spinous. *Receptacle* pitted. *Pappus* deciduous, rough.

Syngenesia. Æqualis.

O. acanthium Linn. : leaves ovate-oblong, sinuate and spinous, decurrent, woolly on both sides ; scales of the involucre subulate, spreading.

HAB. Waste grounds. N. S. July. ♂.—Stem 4—6 feet high, branched and winged to the summit ; wings very spinous. Involucre globose. Flowers large, solitary, purple. Introduced.

Cotton Thistle.

13. CENTAUREA. Linn.

Involucre scaly. *Receptacle* bristly. *Corol* of the ray infundibuliform, irregular, larger than those of the disk. *Pappus* simple. *Syngenesia*. *Frustranea*.

1. *C. jacea* Linn. : leaves linear-lanceolate, the lower ones broader and toothed ; scales of the involucre scariose and torn, the lower ones pinnatifid.

HAB. Penn. Muhl. July, Aug. 2f.—Scales of the involucre pale-brown and shining, the outer ones deeply pinnatifid, the inner or uppermost ones torn. Flowers purple. Introduced.

Brown Knapweed.

2. *C. nigra* Linn. : lower leaves angular-lyrate, upper ones ovate ; scales of the involucre ovate, ciliated with capillary teeth.

HAB. Mass. and Penn. July, Aug. 2f.—Stem 2—3 feet high. Leaves scabrous. Scales of the involucre almost black, the teeth brown. Flowers solitary, terminal, purple. Introduced.—Besides the above, *C. cyanus*, *C. benedicti* and *C. calcitrapa* are naturalized in some parts of the United States. None of them are indigenous.

Black Knapweed.

14. ELEPHANTOPUS. Linn.

Partial involucre 4-flowered. *Florets* ligulate, 5-cleft, perfect. *Receptacle* naked. *Pappus* setaceous.

Syngenesia. *Segregata*.

E. carolinianus Willd. : stem branched, leafy, hairy ; leaves of the root and stem oblong, tapering at base, hairy.

HAB. Dry soils. Md. to Car. Sept. 2f.—Stem 2 feet high, villous, especially near the base, branching towards the summit. Heads of flowers composed of four clusters, each 4-flowered, with the involucre 9—10-leaved. Corol purple.

Elephant's-foot.

15. VERNONIA. Linn.

Involucre ovate, imbricate. *Receptacle* naked. *Stigma* bifid. *Pappus* double ; outer short, chaffy ; inner capillary.

Syngenesia. *Æqualis*.

1. *V. noveboracensis* Willd. : leaves numerous, lanceolate, scabrous, serrulate ; corymb fastigiate ; scales of the involucre filiform at the summit.

HAB. Wet grounds. Can. to Car. W. to Miss. Aug., Sept. 2f. —Stem 4—6 feet high, branching towards the top. Flowers in a very large terminal corymb, purple.

2. *V. prealta* Willd. : stem very tall, angular, densely pubescent ; leaves numerous, lanceolate, acutely serrate, pubescent beneath ; corymb fastigiate ; scales of the involucre ovate, acute, unarmed.

HAB. Meadows. N. S. to Car. Aug.—Oct. 2f. —A very tall rough looking plant. Flowers purple.

16. LIATRIS. Linn.

Involucre oblong, imbricate. *Receptacle* naked. *Pappus* feathered, generally coloured. *Acines* pubescent, obconic.

Syngenesia. *Æqualis*.

1. *L. spicata* Willd. : leaves linear, entire, smooth, ciliate at base, nerved and punctate ; flowers in spikes ; scales of the involucre linear, obtuse.—*L. macrostachya* Mich. Pursh.

HAB. Meadows. Penn. to Car. Aug., Sept. 2f. —Stem 3—6 feet high. Flowers in a terminal spike, purple. *Involucres* 8—10-flowered.

2. *L. pilosa* Willd. : stem simple, pubescent ; leaves linear, hairy, ciliate ; flowers in loose racemose heads ; scales of the involucre oblong, obtuse ; pedicels bracteate.

HAB. Pine barrens. N. J. to Geor. Sept.—Nov. 2f. —Stem 2—3 feet high, a little hairy. Leaves long and linear. Raceme long, leafy. *Involucre* with 10—14 flowers. Flowers small, bright purple.

3. *L. scariosa* Willd. : stem erect, hairy ; leaves lanceolate, pubescent, scabrous on the margin ; raceme long ; involucre 14-flowered ; scales obovate, nearly glabrous, with the margins scarious ; the lower ones expanding.

HAB. Sandy woods. Penn. to Car. Aug.—Oct. 2f. —Stem 3—4 feet high. Lower leaves very long. Flowers numerous, in a terminal raceme, bright purple. A very variable species. See. *Ell. Sk.* ii. 281.

4. *L. squarrosa* Willd. : stem simple, pubescent ; leaves very long, linear, nerved, with the margins scabrous ; racemes few-flowered, leafy ; upper scales of the involucre lanceolate, rigid and spreading ; segments of the florets linear, villous internally.

HAB. Sandy woods. Penn. to Flor. W. to Miss. Sept.—Oct. 2f. —Stem 2—3 feet high. Flowers generally 4—5, in a terminal raceme, bright purple. *Involucre* about 20-flowered.

17. BACCHARIS. Linn.

Involucre imbricate, its scales ovate and somewhat coria-

ceous. *Receptacle* naked. *Florets* tubular, dioecious. *Sterile* with the anthers exerted, unawned at base, pappus slightly feathered. *Fertile* filiform, pappus capillary.

Syngenesia. Superflua.

B. halimifolia Linn. : leaves obovate and oval, incisely toothed near the summit ; panicle compound, leafy ; heads of flowers peduncled.

HAB. Sea coast. Md. to Geor. Sept., Oct. ½.—A shrub 6—12 feet high, and with the leaves covered with a whitish powder or dust. *Flowers* in a large loose terminal panicle. *Pappus* of the fertile *florets* hairy, twice as long as the corol.

Ploughman's Spikenard.

18. CONYZA. Linn.

Involucre imbricate, the scales appressed. *Receptacle* naked. *Marginal florets* fertile, 3-cleft. *Pappus* simple, capillary. *Acines* hairy.

Syngenesia. Superflua.

C. camphorata Pursh : herbaceous, slightly pubescent ; leaves on petioles, ovate-lanceolate, very acute, denticulate ; corymbs terminal and axillary, shorter than the leaves ; scales of the involucre acute, as long as the *florets*.—*Erigeron camphoratum* Linn.

HAB. Salt marshes. Mass. to Geor. Aug., Sept. 2½.—*Stem* 1—2 feet high, rather succulent. *Flowers* in axillary and terminal corymbs, purple.—When bruised, this plant gives out a strong apicy but somewhat disagreeable odour. *Big. Marsh Fleabane.*

19. INULA. Linn.

Involucre squarrose or imbricate. *Florets* of the ray very numerous, yellow. *Anthers* each with 2 bristles at the base. *Receptacle* naked. *Pappus* simple. *Nutt.*

Syngenesia. Superflua.

I. helxium Linn. : leaves clasping, somewhat toothed, ovate, rugose and tomentose beneath ; scales of the involucre downy.

HAB. Road sides. N. S. July, Aug. 2½.—*Stem* 3—4 feet high, branching at the top. *Leaves* very large, those of the root petioled, of the stem clasping. *Flowers* large, solitary, terminal, yellow.

Elecampane.

20. CHRYSOPSIS. Nutt.

Involucre imbricate. *Anthers* naked at the base. *Receptacle* naked. *Pappus* double ; the outer chaffy and minute ; the inner hairy, scabrous and many rayed. *Acines* obovate, villous.—Rays of the corol mostly yellow.

Syngenesia. Superflua.

1. *C. mariana* Nutt. : hairy; leaves oblong, lanceolate, serrate; the upper ones sessile, acute; the lower ones spatulate and generally obtuse; corymb simple; involucre viscidly pubescent.—*Inula mariana* Linn.

HAB. Sandy woods. N. J. to Car. Aug.—Oct. 2f.—Stem 1—2 feet high, clothed with long hairs. Flowers in corymbs; florets of the ray 16—20.

2. *C. falcata* Beck : woolly and villous; leaves sessile, linear, very acute, subfalcate and spreading; nerves pilose on both sides; flowers in axillary corymbs; involucre pilose.—*Inula falcata* Pursh.

HAB. Pine woods. N. J. Sept., Oct. 2f.—Stem 6—12 inches high. Flowers in crowded corymbs, small, bright yellow. Ray florets oblong, tridentate.—Mr. Nuttall supposes this species to be a mere variety of the preceding.

3. *C. graminifolia* Nutt. : silky; stem leafy towards the summit; leaves linear-lanceolate, acute, entire, nerved; corymb compound.—*Inula graminifolia* Mich.

HAB. Sandy woods. Del. to Flor. Aug.—Oct. 2f.—Stem 1—2 feet high and with the leaves covered with a silky pubescence. Leaves long, linear. Corymb made up of many heads. Flowers yellow.—Closely allied to *C. argentea* of Elliott, but the leaves are conspicuously nerved, the corymbs generally more compact and the heads more numerous.—The three species above described, differ so much in habit from *Inula helenium*, as to warrant their separation; a suggestion first made by Mr. Nuttall, and subsequently adopted by Mr. Elliott. But it is doubtful whether the range of the genus is so extensive as we should be led to infer from the remarks of Mr. Nuttall.

21. ARNICA. Linn.

Involucre hemispherical, with the leaflets equal and longer than the disk. Receptacle naked. Pappus simple. Florets of the ray often with 5 filaments destitute of anthers, (yellow.)
Syngenesia. Superflua.

A. nudicaulis Nutt. : hirsute; radicle leaves opposite, decussate, broad-lanceolate, nerved and toothed; stem nearly leafless, divided near the summit into a few 1-flowered branches.—*A. claytoni* Pursh.—*Doronicum nudicaule* Mich.

HAB. Pine barrens. Penn. to Car. July, Aug. 2f.—Stem 2—3 feet high, simple, hirsute, somewhat viscid. Leaves of the root large, spreading, strongly nerved. Flowers large, yellow.
Leopard's-bane.

22. GNAPHALIUM. Linn.

Involucre imbricate, with the scales membraneous and often coloured. Receptacle naked. Florets of the ray subulate; some of the disk occasionally abortive. Pappus rough.

Syngenesia. Superflua.

* *Flowers perfect.*

1. *G. polycephalum* Mich. : herbaceous, erect ; leaves linear-lanceolate, acute, glabrous on the upper surface, pubescent beneath ; stem paniculate, tomentose ; corymbs terminal, clustered.

HAB. Fields. Can. to Car. W. to Miss. July—Sept. ☉.—
Stem 1—2 feet high. Flowers in thick clusters forming a large
terminal corymb, pale yellow. *Fragrant Life Everlasting.*

2. *G. purpureum* Linn. : herbaceous ; stem erect, simple ; leaves linear-spathulate, tomentose beneath ; flowers sessile, clustered, axillary and terminal.

HAB. Barren soil. N. Y. to Car. July—Oct. 2f.—Stem erect
and assurgent, 8—12 inches high. Flowers in compact axillary
and sessile clusters, purplish.

3. *G. sylvaticum* Linn. : stem herbaceous, very simple, nearly erect ; leaves linear-lanceolate, downy on both sides ; flowers axillary, forming a distant and leafy spike.

HAB. Woods. Can. and N. S. July, Aug. 2f.—Stem a foot
high. Flowers sessile in the axils of the leaves, forming a more
or less interrupted spike. Scales of the involucre oblong, shining,
with a broad brown border.

4. *G. americanum* Linn. : stem herbaceous, erect, branching ; leaves obovate-spathulate, pubescent beneath ; flowers axillary and terminal, in clustered spikes.

HAB. Rocky woods. Penn. and Virg. July—Sept. ☉.—Stem
6—10 inches high. Flowers small, pale yellow.

5. *G. uliginosum* Linn. : stem herbaceous, branched, diffuse, woolly ; leaves linear-lanceolate ; flowers in terminal crowded clusters which are shorter than the leaves.

HAB. Wet grounds. Can. and N. S. Aug., Sept. ☉.—Stem
a span high, very much branched. Flowers small, 2—3 together,
forming oblong clusters at the extremity of the branches.
Scales of the involucre yellowish-brown, shining.

Marsh Cudweed.

6. *G. germanicum* Smith : stem herbaceous, erect, proliferous at the summit ; leaves lanceolate, acute, downy ; flowers capitate in the axils of the branches and terminal.

HAB. Fields and pastures. Penn. and Virg. July, Aug. ☉.—
Stem 6—8 inches high, with numerous leaves. Flowers in a
globular head. Scales of the involucre yellowish, very acute.

Common Cudweed.

7. *G. decurrens* Ives : stem erect, much branched ; leaves linear-lanceolate, very acute, decurrent, white and woolly beneath, naked above ; flowers in dense terminal roundish clusters.

HAB. Hills. N. S. Aug. 2f.—Stem 1 1-2—2 feet high. Flowers
yellowish,

** *Flowers dioecious.* ANTENNARIA. *Brown.*

8. *G. margaritaceum* Linn. : herbaceous ; stem branching near the summit ; leaves linear-lanceolate, tapering, acute ; tomentose beneath ; corymb fastigiate ; flowers on pedicels.

HAB. Woods and mountains. Can. to Car. Aug., Sept. 2f.—
Stem 1—2 feet high, clothed with a thick wool. *Flowers* large,
in terminal corymbs. *Involucre* white. *Florets* yellow.

Life Everlasting.

9. *G. plantagineum* Linn. : shoots procumbent ; stem simple ; radical leaves ovate, nerved ; corymb clustered ; flowers dioecious ; inner scales of the involucre long, obtuse, coloured.—*G. dioicum* var. *plantagineum* Mich.

HAB. Woods. Can. to Car. W. to Miss. May, June. 2f.—
Stem 8—10 inches high, downy. *Radical leaves* large and broad,
those of the stem lanceolate. *Flowers* in a small terminal co-
rymb, reddish-white ; fertile ones cylindrical and slender.

SUBORDER III. ASTERÆ.

23. ERIGERON. Linn.

Involucre imbricate. *Receptacle* naked. *Florets* of the ray numerous, very narrow, (mostly of a different colour from the disk.) *Pappus* double ; the outer very small ; the inner hairy, of a few rays. *Syngenesia. Superflua.*

1. *E. bellidifolium* Linn. : hirsute-hoary ; radical leaves obovate, slightly serrate ; those of the stem sessile, scattered, oblong-lanceolate ; stem 3—5-flowered ; rays twice as long as the involucre.—*E. pulchellum* Mich.

HAB. Shady woods. Can. to Car. W. to Miss. June—Aug.
2f.—Stem 12—18 inches high. *Flowers* few, large, pale purple.
Robin's Plantain.

2. *E. integrifolium* Big. : stem simple, leafy, smooth ; leaves lanceolate, entire, 3-nerved ; flowers corymb ; involucre hemispheric, with acute scales.

HAB. Woods and road sides. N. S. June—Aug. 2f.—Stem
2 feet high, simple. *Leaves* slightly clasping, lower ones some-
times toothed. *Flowers* white, on rough leafy peduncles.

3. *E. philadelphicum* Linn. : pubescent ; lower leaves cuneate, oblong, sometimes incisely toothed ; stem leaves oblong-lanceolate, clasping ; flowers somewhat corymbose ; florets of the ray capillary, twice as long as the involucre.

HAB. Fields and woods. Can. to Car. W. to Miss. Aug.,
Sept. 2f.—Stem 2—3 feet high, slender. *Flowers* in a loose
corymb, pale purple ; ray florets very numerous.

4. *E. purpureum* Linn. : pubescent ; leaves oblong, toothed, clasping ; upper ones very entire ; peduncles corymb, thick, the lower

ones elongated; scales of the involucre pilose; rays twice as long as the calyx.

HAB. Woods and pastures. Can. to Virg. N. to Arc. Amer. July, Aug. 2f.—Stem 12—18 inches high. Flowers large, purple.

5. *E. strigosum* Linn.: strigose and hairy; leaves lanceolate, attenuate at each end, entire or with a few coarse teeth in the middle; flowers in a corymbose panicle.—*E. strigosum* and *E. nervosum* Pursh.?

HAB. Fields and meadows. Can. to Car. W. to Miss. July, Aug. ♂.—Stem 2—3 feet high. Flowers white, with the rays capillary.

6. *E. heterophyllum* Linn.: radical leaves roundish-ovate, deeply toothed, petiolate; those of the stem lanceolate, acute, serrate in the middle; corymb terminal.

HAB. Waste grounds. N. S. June—Aug. ♂.—Stem 2—3 feet high. Flowers white.

Subgenus CEANOTUS. Nutt. Pappus simple.

7. *E. canadense* Linn.: stem hispid, paniculate, often profusely branched; leaves lanceolate-linear; florets of the ray numerous, crowded, very short.—*E. canadense* and *E. pusillum* Nutt.

HAB. Dry fields. Can. to Flor. W. to Miss. July—Sept. ☉. Stem 6 inches to 6 feet high. When small, constituting *E. pusillum* of Nuttall.

24. ASTER. Linn.

Involucre imbricate, with the lower scales often spreading. Florets of the ray generally more than 10, (not yellow.) Receptacle naked. Pappus simple, hairy.

Syngenesia. Superflua.

Obs. Mr. Elliott's admirable Sketch of the Botany of South Carolina and Georgia, contains detailed descriptions of many of our Northern Asters, and may be consulted with much advantage. The whole genus is liable to great variations; and it is more than probable that many of the species here enumerated, will be found, on more minute investigation, to be mere varieties.

* Florets of the ray 5, white. Scales of the involucre white, with the summits green.

1. *A. solidaginoides* Mich.: leaves linear-lanceolate, entire, scabrous on the margin; branches corymbose-fastigate; flowers sessile, aggregated; scales of the involucre oblong-obtuse, appressed, somewhat reflexed at the summit.—*Conyza linifolia* Linn.

HAB. Dry swamps and woods. Penn. to Car. Aug.—Oct. 2f.—Stem 2 feet high, smooth. Leaves almost linear, obscurely 3-nerved. Flowers in small clusters, forming a fastigate corymb.

2. *A. conyzoides* Willd. : stem simple, smooth and rigid ; leaves oval-lanceolate, acute, serrate towards the summit, 3-nerved ; the lower ones attenuate at base ; the upper entire ; scales of the involucre oval, obtuse, appressed, slightly reflexed at the summit.—*A. marylandicus* Mich.

HAB. Woods and copses. Penn. to Geor. July, Aug. 2f.—Stem 1—2 feet high.—Var. *plantaginifolius* of Nuttall, differs only in being smaller and in having its leaves cuneate-ovate.

** Florets of the ray numerous. Pappus simple.

† Leaves entire.

3. *A. hyssopifolius* Linn. : leaves linear-lanceolate, 3-nerved, dotted, acute, with the margin scabrous ; branches fastigiate, clustered ; florets of the ray about 5 ; scales of the involucre about half as long as the disk.

HAB. Sandy fields. N. J. to Car. Aug.—Oct. 2f.—Stem 1—2 feet high, smooth. Flowers in small terminal fastigiate corymbs. Florets of the ray 3—7 or more, white or purplish.

4. *A. subulatus* Mich. : very smooth ; leaves linear-subulate, acute, erect ; branches many-flowered ; involucre cylindrical, the scales subulate ; florets of the ray minute.

HAB. Salt marshes. Penn. to Car. Aug.—Nov. 2f.—Stem erect, 2—3 feet high, smooth, with numerous spreading branches. Flowers very small, in a loose terminal panicle, pale purple.

5. *A. foliolosus* Ait. : stem bearing many branches, erect ; leaves linear-lanceolate, attenuate at each end, acuminate, margin scabrous ; those of the branches minute and numerous ; branches few-flowered ; scales of the involucre linear-acute, appressed.—*A. cordifolius* Mich.

HAB. Fields and road sides. Can. to Car. Aug.—Oct. 2f.—Stem 2—3 feet high, with spreading branches. Flowers in a compound panicle, white or pale purple.

6. *A. tenuifolius* Linn. : stem smooth, erect, with 1-flowered branches ; leaves linear-lanceolate, tapering at each end, very entire, slightly scabrous along the margin ; scales of the involucre acute, loose.

HAB. Fields and road sides. Can. to Car. Aug.—Nov. 2f.—Stem 2—3 feet high, with numerous leaves. Flowers numerous, in racemes along the main branches, pale purple.—It sometimes has the branches paniculate, and at others the leaves are quite linear, constituting in the former case *A. dumosus* Linn., in the latter *A. ericoides* Linn.

7. *A. nemoralis* Ait. : leaves linear-lanceolate, attenuate at base, with the margin scabrous and revolute ; branches filiform, naked, 1-flowered ; involucre loosely imbricated, with the scales acute and much shorter than the disk ; rays numerous.—*A. ledifolius* Pursh.

HAB. Sphagnous swamps. Can. and N. J. Sept., Oct. 2f.—Stem simple, 12—18 inches high, fragile and thickly set with leaves which are sometimes minutely bidentate. Flowers large, pale violet.—The stem is sometimes simple and 1-flowered.—*A. uniflorus* Mich.

8. *A. paludosus* Ait. : stem simple; leaves sessile or clasping, subulate, smooth, with the margin scabrous; peduncles few, 1-flowered, axillary and terminal, leafy, pubescent; involucre large and squarrose.—*A. grandiflorus* Walt. ?

HAB. Borders of swamps. N. J. to Flor. Aug.—Nov. 2f.—Stem 1—2 feet high, smooth nearly to the top, 3—5-flowered. Flowers very large and beautiful, the rays bright blue.

9. *A. multiflorus* Ait. : stem diffusely branched, pubescent; leaves linear, entire, nearly smooth, slightly ciliate; involucre and peduncles squarrose, the scales oblong and ciliate.—*A. multiflorus* and *A. ciliatus* Willd.

HAB. Fields and road sides. Can. to Car. Aug. 2f.—Stem 2—3 feet high, branching, very pubescent. Flowers in crowded terminal racemes, on horizontal branches. Ray florets nearly white, disk ones yellowish.

10. *A. sparsiflorus* Mich. : very smooth; stem slender, much branched; leaves linear-subulate, somewhat fleshy and reflexed; branches spreading, leafy, 1-flowered; scales of the involucre acute, appressed.

HAB. Salt marshes. N. Y. to Car. Sept.—Nov. 2f.—Stem 1—2 feet high. Flowers large; rays pale purple; disk yellow.

11. *A. concolor* Linn. : stem simple, erect, pubescent; leaves oblong-lanceolate, entire, hoary and pubescent on both sides; raceme terminal; scales of the involucre lanceolate, silky, appressed.

HAB. Pine woods. N. J. to Flor. Aug.—Nov. 2f.—Stem 2—3 feet high, sparingly branched. Flowers in a long terminal raceme, blue. Root often tuberous.

12. *A. salicifolius* Pursh : stem smooth, paniculate at the summit; leaves linear-lanceolate, nearly entire, smooth; involucre lax, with the scales acute and spreading at their summits.—*A. prealtus* Lam.

HAB. Low grounds. N. S. Aug.—Oct. 2f.—Stem 4—6 feet high. Flowers middle-sized, reddish-blue.

13. *A. aestivus* Ait. : stem branching from the base, erect, hispid; branches hairy; leaves lanceolate, subclasping, attenuate at the apex, with the margin scabrous; scales of the involucre loose, linear, acute, equal.

HAB. Dry swamps. N. S. July—Sept. 2f.—Stem 2 feet high. Flowers middle-sized; rays blue.

14. *A. nova anglie* Linn. : stem erect, hairy, paniculate; leaves narrow-lanceolate, hairy, clasping, auriculate, crowded on the branchlets; scales of the involucre lanceolate, loose, rather longer than the disk.

HAB. Meadows. Can. to Car. Sept.—Nov. 2f.—Stem 3—6 feet high, almost hispid, with spreading branches. Flowers large, in a loose terminal panicle, blue or purple.—A very ornamental species.

15. *A. cyaneus* Pursh : stem very smooth, branching, the branches spreading; leaves linear-lanceolate, clasping, smooth; flowers in pani-

culate racemes; scales of the involucre loose, lanceolate, as long as the disk.—*A. novæ anglæ* var. *b.* Ait.

HAB. Old meadows. N. Y. to Car. Sept.—Nov. 2l.—Stem 3—4 feet high, smooth or slightly pubescent on the young branches. Flowers large, blue and purple.—Said by Pursh to be the handsomest of the genus.

16. *A. phlogifolius* Willd.: stem very simple, pubescent; leaves lanceolate, cordate, clasping, pubescent beneath, scabrous on the margin; panicle terminal, loose, few-flowered; scales of the involucre loose, imbricate, lanceolate.—*A. amplexicaulis* Mich.

HAB. Moist grounds. N. J. to Virg. Aug.—Nov. 2l.—Stem 1—2 feet high. Flowers middle-sized, violet.

17. *A. patens* Ait.: stem branching, hairy; leaves oblong-lanceolate, ciliate, cordate, clasping, scabrous and hairy on both sides; branches spreading, elongated, few-flowered, with minute leaves; scales of the involucre imbricate, lanceolate, spreading.—*A. diversifolius* Mich.

HAB. Hedges. N. S. Sept.—Nov. 2l.—Stem 1—2 feet high. Flowers middle-sized; rays blue or purple; disk yellow.

†† Leaves lanceolate and ovate; the lower serrate.

1. Flowers in corymbs.

18. *A. nudiflorus* Nutt.: stem simple and smooth; leaves sessile, ovate-lanceolate, subacuminate, sharply serrate, upper surface scabrous; corymb simple, few-flowered; peduncles pubescent, naked, mostly 1-flowered; involucre hemispherical, closely imbricated; scales linear-oblong and ciliate.

HAB. Swamps. N. J. rare. 2l.—Stem 2—3 feet high. Leaves 3 inches long, 1 inch wide. Flowers on peduncles 3—4 inches long, large, pale purple.

19. *A. radula* Ait.: stem erect, simple, angular; leaves lanceolate, serrate, acuminate, rugose and very scabrous; corymb terminal; involucre imbricate; scales lanceolate, somewhat obtuse, subsquarrose.

HAB. Nova Scotia and high mountains in N. S. Sept.—Nov. 2l.—Flowers middle-sized; rays short, white.

20. *A. strictus* Pursh: leaves sessile, narrow-lanceolate, serrate, scabrous; stem one or few-flowered above; scales of the involucre imbricate, appressed, oblong, acute, scarcely shorter than the disk.—*A. biflorus* Mich.

HAB. High mountains. N. S. N. to Labrador. Sept., Oct. 2l.—Stem 4—6 inches high. Flowers middle-sized; rays pale violet; disk brownish-yellow.

21. *A. surculosus* Mich.: stem simple, low and slender, minutely pubescent; lower leaves linear-lanceolate, entire or subserrate, scabrous above; upper ones linear, clasping; corymb 3—5-flowered, somewhat naked; involucre imbricate, subsquarrose; scales ciliate, linear-oblong, inner ones obtuse; rays about 20.

HAB. Woods. N. S. Torr. S. to Car. Sept. Oct. 2l.—Root creeping. Stem 12—18 inches high. Flowers rather large, violet

purple; inner scales of the involucre often coloured.—The habit of this species is very much like that of a corymbose *Liatris*, and Mr. Nuttall thinks it is the *A. elegans* of Willdenow.

22. *A. spectabilis* Ait.: leaves oblong-lanceolate, somewhat scabrous and clasping; lower ones serrate in the middle; branches corymbose; involucre hemispherical, somewhat glandularly pubescent, foliaceous and squarrose; scales ciliate, cuneate-ovate and partly acute.

b. bellidifolius Nutt.: leaves oblong-obovate, serrate; corymb nearly simple, with the branchlets mostly 1-flowered.—*A. bellidiflorus* Willd.?

HAB. Swamps. N. J. to Virg. Aug.—Nov. 2f.—Stem 2 feet high; branches 2 or 3-flowered, somewhat hairy. Flowers 10—15 in a corymb, large and blue. Var. *b.* has the stem never hairy above.

23. *A. serotinus* Willd.: leaves oblong-lanceolate, acuminate, sessile, smooth, scabrous on the margin; lower ones serrate; branches corymbose, smooth; branchlets 1-flowered; scales of the involucre lanceolate, acuminate, spreading.

HAB. Low grounds. N. Y. to Virg. Sept.—Nov. 2f.—Stem 3 feet high. Flowers large, blue.

24. *A. puniceus* Linn.: stem hispid; leaves clasping, lanceolate, serrate, somewhat scabrous; branches paniculate; involucre loose, exceeding the disk; scales linear-lanceolate, nearly equal.

HAB. Salt swamps. Can. to Car. Sept.—Nov. 2f.—Stem 6—8 feet high, purplish. Flowers large, purple or blue.

25. *A. novi belgii* Linn.: stem terete, smooth; leaves subclasping, lanceolate, smooth, scabrous on the margin; lower ones somewhat serrate; branches subdivided; involucre loosely imbricated; scales linear-lanceolate.—*A. novi belgii* and *A. floribundus* Willd.

HAB. Fields. N. S. Aug.—Oct. 2f.—Stem 3 feet high. Flowers middle-sized, pale purple.

26. *A. acuminatus* Mich.: stem simple, flexuous, angular; leaves broad-lanceolate, tapering and entire towards the base, unequally serrate near the summit, conspicuously acuminate; panicle corymbose, divaricate, dichotomous; scales of the involucre loose, linear, shorter than the disk.

HAB. Can. and mountains in N. S. Aug.—Oct. 2f.—Stem a foot or more high. Leaves large. Flowers middle-sized; rays white.

27. *A. dracunculoides* Willd.: stem nearly smooth; leaves linear, acuminate, very entire; lower ones linear-lanceolate, subserrate; branches corymbose; involucre imbricate.

HAB. Low grounds. N. J. to Car. Sept.—Nov. 2f.—Stem 4 feet high. Flowers small; rays white.

2. Flowers in panicles.

28. *A. amplexicaulis* Willd.: stem smooth, paniculate; leaves ovate-

oblong, acute, clasping, cordate, serrate, smooth; scales of the involucre lanceolate, closely imbricate.—*A. pennsylvanicus* Lam.

HAB. Woods. N. J. to Car. Sept.—Nov. 2f.—Stem 2—3 feet high. Lower leaves attenuate and clasping, the upper ones more cordate. Flowers in a terminal panicle, middle-sized, blue.

29. *A. prenanthoides* Willd.: branches hairy; leaves clasping, spathulate-lanceolate, acuminate, serrate in the middle, cordate at base; scales of the involucre lanceolate, squarrose.

HAB. Penn. Muhl. Aug.—Oct. 2f.—Flowers blue.

30. *A. levigatus* Willd.: stem much branched, smooth; branches many-flowered; leaves subclasping, broad-lanceolate, subserrate, smooth; scales of the involucre lanceolate, loose, as long as the disk.

HAB. Wet woods. N. Y. to Car. Sept., Oct. 2f.—Stem 2—4 feet high, profusely branched. Upper leaves narrow and nearly entire. Flowers numerous, pale purple; disk yellow.

31. *A. versicolor* Willd.: stem much branched, smooth; leaves subclasping, broad-lanceolate, smooth, somewhat serrate; radicle ones serrate in the middle; scales of the involucre lanceolate, loose, shorter than the disk.

HAB. Fields and Woods. N. J. to Car. Aug.—Oct. 2f.—Stem 2 feet high. Flowers large and very numerous, clustered towards the summits of the branches; disk yellow; rays white, changing to a deep violet. Pursh.

32. *A. mutabilis* Linn.: stem smooth; branches virgate; upper leaves somewhat clasping, lanceolate, acuminate, very entire; lower ones lanceolate, narrow at base, serrate; scales of the involucre loose, shorter than the disk.

HAB. Fields and woods. Penn. to Virg. Aug.—Oct. 2f.—Flowers middle-sized; disk yellow; rays deep purple, changing to purple. Pursh.

33. *A. laevis* Linn.: stem smooth, angular; branches simple, 1-flowered; leaves somewhat clasping, remote, oblong, very entire, shining; radical ones subserrate; scales of the involucre imbricate, subcuneiform, acute, thickened at the apex.

HAB. Woods and sides of ponds. N. Y. to Virg. Sept.—Nov. 2f.—Stem 2 feet high. Flowers large, bluish-purple.

34. *A. concinnus* Willd.: stem simple, paniculate at the summit; leaves lanceolate, somewhat clasping; lower ones smooth, subserrate; involucre closely imbricate.

HAB. Woods. N. Y. and Penn. Sept.—Nov. 2f.—Stem 2 feet high. Flowers bluish-purple. Leaves, said by Pursh, to resemble those of *Phlox maculata*.

35. *A. tardiflorus* Linn.: branches divaricate; leaves sessile, serrate, smooth, spathulate-lanceolate, attenuate at base, margin reflexed; involucre loose; scales linear-lanceolate, nearly equal, smooth.

HAB. Low ground. N. S. Sept.—Nov. 2f. rare.—Flowers middle-sized; rays pale blue.

36. *A. tradescanti* Linn.: stem terete, smooth; branches virgate; leaves lanceolate, serrate, sessile, smooth; involucre imbricate

HAB. Dry swamps. Can. to Virg. Aug.—Oct. 2f.—Stem 3—4 feet high. Flowers very small; rays white or purple.—*A. recurvatus* of Willdenow, is considered by Dr. Torrey as a mere variety of the above. It has the leaves narrower and the panicle sometimes recurved.

37. *A. eminens* Willd.: stem paniculate; branchlets 1-flowered; leaves linear-lanceolate, acuminate, scabrous on the margin; lower ones subserrate; involucre imbricate; scales lanceolate—and *A. laxus* Willd.

HAB. Fields. N. J. to Virg. Sept.—Nov. 2f.—Flowers middle-sized; rays pale, lilac; disk yellow, changing to red.—As suggested by Mr. Nuttall, *A. laxus* of Willdenow is scarcely to be distinguished from this species.

38. *A. simplex* Willd.: stem very smooth, paniculate at the summit; leaves lanceolate, acuminate, scabrous on the margin; those of the stem serrate at the apex, of the branches very entire; involucre loosely imbricate; scales linear-subulate.

HAB. Penn. Torr. 2f.—Rays white; disk yellow. Pursh.

39. *A. polyphyllus* Willd.: stem much branched, pubescent; leaves linear, very entire; radical ones oblong, subserrate; involucre loosely imbricate.

HAB. Penn. Torr. 2f.—Rays white; disk yellow, changing to red or brown. Pursh.

40. *A. junceus* Ait.: stem paniculate, smooth; branches virgate; leaves lanceolate-linear, sessile, smooth; lower ones subserrate; those of the branches lanceolate; involucre imbricate.

HAB. Low grounds. N. S. Aug.—Oct. 2f.—Stem 4—6 feet high. Flowers flesh coloured.—*A. lanceolatus* of Willdenow, is only a variety with a branched stem and smaller flowers.

41. *A. fragilis* Willd.: stem smoothish; branches corymbose-paniculate; leaves linear, acuminate, very entire; radical ones oblong, serrate; involucre imbricate; scales appressed.

HAB. Fields. N. S. Sept. 2f.—Stem 2 feet high. Flowers small, white.

42. *A. miser* Linn.: stem villous; leaves sessile, lanceolate, serrate, smooth; involucre imbricate; scales acute; disk equal to the ray.

a. *divergens*; leaves elliptical-lanceolate.—*A. divergens* Ait.

b. *diffusus*; leaves all proportioned.—*A. diffusus* Ait.

c. *pendulus*; leaves of branches rather remote.—*A. pendulus* Ait.

HAB. Fields. N. S. Aug.—Nov. 2f.—Flowers small, white.

—I follow Dr. Torrey in uniting the above species with *A. miser*.

3. Leaves cordate and ovate, serrate.

43. *A. undulatus* Linn.: stem paniculate, hispid; branchlets secund, leafy, 1-flowered; leaves oblong, cordate, clasping, very entire, hairy,

subundulate; lower ones cordate, ovate, subserrate, petiolate; petioles winged.—*A. diversifolius* Mich.

HAB. Old fields. N. Y. to Car. Sept. 24.—Stem 2—3 feet high. Flowers large, in a terminal spike; ray pale blue; disk yellow.—According to Mr. Elliott *A. patens* of Willdenow and *A. amplexicaulis* of Michaux are identical with this species.

44. *A. sagittifolius* Willd.: stem smooth, branched; leaves oblong-lanceolate, acuminate, sessile, serrate in the middle; radical ones oblong, cordate-saggitate, serrate, petiolate; scales of the involucre loosely imbricate, lanceolate.

HAB. Rocky woods. N. S. Torr. S. to Car. Sept. 24.—Stem 2—3 feet high, erect, with many branches. Flowers middle-sized, blue.

45. *A. paniculatus* Ait.: stem much branched, smooth; branchlets hairy; leaves ovate, lanceolate, subserrate, smooth, petiolate; radical ones ovate-cordate, serrate, scabrous, petiolate; petioles naked; involucre loose, somewhat imbricate.

HAB. Woods. Can. to Car. Aug.—Oct. 24.—Stem 2—4 feet high. Flowers rather small, but numerous; rays changing from white to blue; disk from yellow to purple or brown.—Scarcely different from *A. undulatus*.

46. *A. cordifolius* Linn.: stem paniculate, nearly smooth; leaves cordate, hairy beneath, coarsely serrate, petiolate; petioles winged; panicle divaricate; involucre loose, slightly imbricate—and *A. heterophyllus* Willd.

HAB. Mountainous woods. Can. to Flor. Sept.—Nov. 24.—Stem 2—3 feet high, branched, with the branches pubescent. Flowers small, in panicles composed of crowded racemes, white or pale purple.

47. *A. corymbosus* Ait.: stem smooth; branches hairy; leaves ovate, sharply serrate, acuminate, nearly smooth; lower ones cordate, petiolate; petioles naked; corymb fastigiate; involucre oblong, imbricate; scales obtuse, closely appressed.

HAB. Dry woods. N. Y. to Car. July, Aug. 24.—Stem 2 feet high. Flowers larger than in the preceding, in a fastigiate corymb, white tinged with purple.

48. *A. macrophyllus* Linn.: stem branched, diffuse; leaves ovate, petiolate, serrate, scabrous; upper ones cordate-ovate, sessile; lower ones cordate, petiolate; petioles somewhat margined; involucre cylindrical, closely imbricate; scales oblong, acute.

HAB. Rocky woods. Can. to Geor. Sept., Oct. 24.—Stem 1—2 feet high. Flowers above middle-size; rays white or blue.

*** Pappus double. Flowers generally in corymbs.

49. *A. linariifolius* Linn.: stem somewhat decumbent; branches fastigiate, 1-flowered; leaves numerous, linear, mucronate, without nerves or punctures, carinate, scabrous, rigid; those of the branches recurved; involucre imbricate, as long as the disk—and *A. rigidus* Willd. Pursh.—*Chrysopsis linariifolia* Nutt.

HAB. Gravelly and rocky places. N. Y. to Car. Sept., Oct. 2f.—*Stem* 1—2 feet high, pubescent when young. *Leaves* very scabrous on the margins. *Branches* 1-flowered, forming an umbellate corymb. *Flowers* middle-sized; *rays* pale violet; *disk* yellow.

50. *A. linifolius* Linn.: stem corymbosely branched, scabrous; branches leafy; leaves linear, without nerves, punctate, scabrous, reflexed-spreading; involucre imbricate, short; rays nearly equal to the disk.—*Chrysopsis linifolia* Nutt.

HAB. Shady woods. N. S. Sept., Oct. 2f.—*Stem* 1 1-2—2 feet high. *Flowers* large, white or pale purple.—Scarcely distinct from the preceding. ?

51. *A. humilis* Willd.: leaves somewhat rhomboidal, oval-lanceolate, acuminate at each end, slightly petiolate, smooth, hispid on the margin; corymb diverging, dichotomous, rather naked, few-flowered; involucre loose, imbricate; florets of the ray 8—and *A. cornifolius* Willd.—*A. infirmus* Mich.—*Chrysopsis humilis* Nutt.

HAB. Rocky situations. Can. to Car. Aug., Sept. 2f.—*Stem* 1—2 feet high, pubescent. *Flowers* in small terminal corymbs; white and large in proportion to the plant; *ray* florets about 8.

52. *A. amygdalinus* Lam.: stem simple, corymbose-fastigiate at the summit; leaves lanceolate, attenuate at base, acuminate, scabrous on the margin; involucre loose, imbricate; scales lanceolate, obtuse.—*A. umbellatus* Ait.—*Chrysopsis amygdalina* Nutt.

HAB. Low grounds. N. S. Aug., Sept. 2f.—*Stem* 2 feet high. *Flowers* numerous; *ray* florets about 12, narrow, white.—Closely allied to the former.

25. SOLIDAGO. Linn.

Involucre imbricate, with the scales appressed. *Florets* of the ray about 5. *Receptacle* naked, punctate. *Pappus* simple, hairy.—*Flowers* yellow. *Syngenesia*. *Superflua*.

Obs. An excellent monograph of this difficult genus by Sir J. E. Smith, will be found in Rees' Cyclopædia, art. SOLIDAGO. The remarks made concerning the variable character of the preceding genus will equally apply to this.

* *Racemes* secund. *Leaves* with 3 combined nerves.

1. *S. canadensis* Linn.: stem villous; leaves lanceolate, serrate, 3-nerved, scabrous; racemes paniculate, secund, recurved; rays short.

HAB. Fields. Can. to Car. Aug., Sept. 2f.—*Stem* 2—5 feet high, very villous. *Leaves* large, always scabrous on the upper surface. *Flowers* in secund racemes, on large branches, recurved at the summit. Golden Rod.

2. *S. procera* Ait.: stem erect, villous; leaves lanceolate, serrate, 3-nerved, scabrous, villous beneath; racemes erect, spiciform, before flowering nodding; rays short.

- * *HAB.* Swamps and low grounds. Can. to Geor. N. to Subarc. Amer. July—Sept. 2f.—*Stem* 4—7 feet high. *Flowers* in a pyramidal panicle which is recurved before flowering.

3. *S. serotina* Ait. : stem erect, terete, smooth ; leaves linear-lanceolate, serrate, smooth, 3-nerved ; racemes paniculate, secund ; peduncles pubescent.

HAB. Woods. N. S. Sept., Oct. 2f.—*Stem* 4 feet high. *Leaves* ciliate on the margin when young.

4. *S. gigantea* Ait. : stem erect, smooth ; leaves lanceolate, serrate, scabrous on the margin, obscurely 3-nerved ; racemes paniculate, secund ; peduncles hirsute ; rays short.

HAB. Low grounds. N. S. Aug., Sept. 2f.—*Stem* 4—7 feet high, purplish.

5. *S. ciliaris* Willd. : stem erect, smooth ; leaves lanceolate, sub-3-nerved, smooth, scabrous on the margin, subserrate ; raceme paniculate, secund ; peduncles smooth ; bracts ciliate ; rays short.

HAB. Woods. Penn. Aug. 2f.—*Stem* 3 feet high, angular. *Radical leaves* oval, petioled.

6. *S. reflexa* Ait. : stem erect, villous ; leaves lanceolate, subserrate, 3-nerved, scabrous, reflexed ; branches paniculate, subsecund, reflexed.

HAB. Pine woods. N. J. to Car. Aug., Sept. 2f.—*Leaves* narrow-lanceolate, with a few serratures in the middle. *Racemes* short.

7. *S. lateriflora* Linn. : stem erect, somewhat hairy ; leaves lanceolate, sub-3-nerved, smooth, scabrous on the margin ; the lower ones slightly serrate ; racemes paniculate, somewhat recurved, secund.

HAB. Dry woods. Can. to Car. Aug.—Oct. 2f.—*Stem* 2—3 feet high ; the lower part sometimes with lateral flowering branches. *Flowers* larger and *leaves* broader than in any of the preceding species.

** *Racemes* secund. *Leaves* veined.

8. *S. aspera* Ait. : stem erect, terete, hairy ; leaves ovate, somewhat elliptic, very scabrous, rugose, serrate, without nerves ; racemes paniculate, secund.

HAB. Fields and woods. N. Y. to Car. Sept. 2f.—*Stem* 3—5 feet high, very hairy and somewhat scabrous. *Flowers* in a long terminal panicle composed of secund racemes.

9. *S. altissima* Linn. : stem erect, hispid ; leaves lanceolate, the lower ones deeply serrate, very scabrous, rugose ; panicle secund and often spreading—and *A. rugosa* Willd.

HAB. Fields and woods. Can. to Car. Aug., Sept. 2f.—*Stem* 3—7 feet high, robust and hairy, much branched at the summit. *Leaves* sessile, lanceolate, acute, rugose and scabrous. *Flowers* in large and almost corymbose panicles composed of small, nearly erect recurved branches.—A very variable species.

10. *S. scabra* Willd. : stem erect, hairy, sulcate ; leaves oblong, at-

tenuate at both ends, acuminate, glabrous above, rugose and scabrous beneath, with appressed serratures in the middle; racemes secund.

HAB. Old fields. Penn. to Virg. Aug.—Oct. 2f.—Stem 2—5 feet high.

11. *S. memorialis* Ait. : stem erect, tomentose; radical leaves somewhat cuneate, serrate; cauline ones lanceolate, hispid, very entire; racemes paniculate, secund.

HAB. Sandy fields. Can. to Car. Aug.—Oct. 2f.—Stem 1—2 feet high. Flowers in a small and somewhat corymbose panicle. —The whole plant has a greyish or pulverulent appearance.

12. *S. patula* Willd. : stem erect, smooth; leaves elliptic, serrate, smooth; radical ones oblong-spathulate; racemes paniculate, secund, spreading; peduncles pubescent.

HAB. Shady woods. N. S. Sept., Oct. 2f.—Stem 2 feet high, virgate and striate. Racemes short, with the flowers rather large.

13. *S. ulmifolia* Willd. : stem erect, smooth, striate; leaves elliptic, deeply serrate, acuminate, villous beneath; radical ones obovate; racemes paniculate, secund; peduncles villous; rays short.

HAB. Shady woods. N. S. Aug.—Oct. 2f.—Stem 3—4 feet high. Flowers in an oblong terminal panicle composed of secund and recurved racemes.

14. *S. arguta* Ait. : stem erect, smooth; leaves smooth, acutely and unequally serrate; radical ones spathulate-ovate; cauline elliptic; racemes paniculate, secund; florets of the ray long.

HAB. Woods and meadows. Can. to Car. Sept.—Nov. 2f.—Stem 2—3 feet high, smooth or a little pubescent. Flowers on recurved racemes forming long terminal panicles.

15. *S. juncea* Ait. : stem erect, smooth; leaves lanceolate, smooth, scabrous on the margin; lower ones serrate; racemes paniculate, secund.

HAB. Sandy fields. N. J. to Car. Aug.—Oct. 2f.—Stem 3 feet high, slender; branches when young pubescent. Leaves long, lanceolate. Racemes secund, forming a scattered terminal panicle.

16. *S. elliptica* Ait. : stem erect, smooth; leaves elliptic, smooth, serrate; racemes paniculate, secund; rays middle-sized.

HAB. Shady woods. N. Y. to Car. ? Aug.—Oct. 2f.—Stem 2—3 feet high. Leaves large.

17. *S. recurvata* Willd. : stem erect, pubescent; leaves lanceolate, serrate, scabrous on the margin; racemes elongated, secund, recurved, paniculate.

HAB. Shady woods. Penn. and Virg. Sept.—Nov. 2f.—Pursh.

18. *S. sempervirens* Linn. : stem erect, smooth; leaves linear-lanceolate, somewhat fleshy, smooth, very entire, scabrous on the margin; racemes paniculate, secund; peduncles hairy.

HAB. Swamps. Can. and N. S. Sept.—Nov. 2f.—Stem 2—3 feet high.

19. *S. odora* Ait. : stem erect, pubescent ; leaves linear-lanceolate, entire, smooth, scabrous on the margin ; racemes paniculate.

HAB. Fertile woods. Can. to Car. Aug.—Oct. 2f.—Stem 3 feet high, pubescent near the summit. *Racemes* recurved, forming a pyramidal panicle.—The flowers when dried, form an excellent substitute for tea, and have been exported to China. *Pursh.* The leaves yield by distillation, a fragrant volatile oil. *Big. Med. Bot.* i. 187. *Golden Rod.*

*** *Racemes erect.*

20. *S. speciosa* Nutt. : stem smooth, simple or virgately branched ; leaves lanceolate, entire, somewhat fleshy, scabrous on the margin ; the lower very broad ; radical ones subserrate ; racemes terminal, erect and compound, pubescent ; peduncles mostly shorter than the involucre ; rays elongated.—*S. sempervirens* Mich.

HAB. Shady woods. N. J. to Car. Sept., Oct. 2f.—Stem often 6 feet high, smooth and sulcate. *Leaves* large. *Racemes* numerous, terminal and erect ; *rays* very broad.

21. *S. bicolor* Linn. : stem and leaves hairy ; leaves elliptic, the lower ones serrate ; branches leafy ; racemes erect ; scales of the involucre obtuse.—*Aster bicolor* Nees and Sprengel.

HAB. Dry hills. Can. to Car. Aug.—Oct. 2f.—Stem 1—2 feet high, erect, very pubescent. *Leaves* covered with a whitish pubescence. *Flowers* numerous, rather large, in short clusters, forming a compact raceme along the upper part of the stem ; *rays* nearly white.

22. *S. petiolaris* Ait. : stem erect, villous ; leaves elliptic, somewhat scabrous, petiolate ; racemes erect ; rays elongated.

HAB. Sandy woods. N. J. to Car. Sept., Oct. 2f.—Stem 2—3 feet high, very villous. *Leaves* large, the upper ones nearly sessile, the lower tapering into a petiole. *Racemes* numerous, short.

23. *S. stricta* Ait. : stem erect, smooth ; cauline leaves lanceolate, very entire, smooth, scabrous on the margin ; radical ones serrate ; racemes paniculate, erect ; peduncles smooth.

HAB. Sandy woods. N. J. to Car. Aug.—Oct. 2f.—Stem 2 feet high, very smooth.

24. *S. virgata* Mich. : stem smooth and simple, summit racemose ; leaves smooth, lanceolate-oblong, somewhat obtuse, appressed to the stem, diaphanously punctate ; the upper ones small and entire ; branches of the panicle elongate, racemed at the summit ; peduncles erect, smooth, filiform and squarrose.

HAB. Swamps. N. J. to Geor. Sept., Oct. 2f.—Stem 4—5 feet high, much attenuated. *Leaves* gradually diminishing upwards ; lower ones very large, serrulate. *Flowers* small.

25. *S. casia* Ait. : stem erect, smooth ; leaves lanceolate, smooth ; racemes erect ; rays middle-sized.

HAB. Sandy woods. N. J. to Car. Aug.—Oct. 2f.—*Stem* 2 feet high, very smooth and glaucous. *Racemes* not very compact, sometimes slightly recurved. *Leaves* sometimes scabrous on the margin, finely and acutely serrate.

26. *S. hispida* Willd. : stem erect, hispid, scabrous; leaves lanceolate, scabrous, entire; radical ones serrate; racemes erect; rays middle-sized.

HAB. Fields and woods. N. J. to Virg. Oct. 2f.—Resembles *S. cæsia*.

27. *S. lithospermifolia* Willd. : stem branched, pubescent; leaves lanceolate, scabrous on both sides, attenuate, 3-nerved, very entire; racemes erect; rays elongated.

HAB. Sandy woods. N. J. to Car. Aug.—Oct. 2f.—*Pursh.*

28. *S. laxigata* Ait. : stem erect, smooth; leaves lanceolate, fleshy, very entire, very smooth; racemes paniculate, erect; peduncles scaly, villous; rays elongated.

HAB. Salt marshes. Can. to Virg. Sept., Oct. 2f.—*Stem* 4—5 feet high. *Radical leaves* somewhat ovate. *Rays* about 10.

29. *S. viminea* Ait. : stem erect, subpubescent; leaves linear-lanceolate, membranaceous, attenuate at base, smooth, scabrous on the margin; lower ones slightly serrate; racemes erect; rays elongated.

HAB. Banks of streams. Can. to Virg. Aug.—Oct. 2f.

30. *S. limonifolia* Pers. : stem oblique, smooth; leaves lanceolate, somewhat fleshy, entire, smooth on both sides; racemes paniced, erect; peduncles scaly, smooth; rays long.—*S. mexicana* Willd. *Pursh.*

HAB. Salt marshes. N. S. S. to Car. Aug.—Oct. 2f.—*Stem* 3—5 feet high, generally purple. *Leaves* sessile, lower ones very large. *Racemes* generally erect, rarely recurved. *Flowers* large.

31. *S. macrophylla* Pursh : lower leaves ovate, acuminate, attenuate, unequally and acutely serrate, smooth; cauline ones lanceolate, attenuate at each end, nearly sessile, serrate; racemes axillary, pedunculate, leafy, as long as the leaves; involucre oblong, turgid, many-flowered; rays somewhat elongated.

HAB. Woods, near White mountains. Big. Can. *Pursh.* Aug. 2f.—*Stem* 3 feet high. *Flowers* yellow, in short axillary racemes.—This plant, which is described by Pursh, from a specimen in the Banksian Herbarium, he thinks intermediate between this genus and *Aster*. According to Dr. Bigelow it has broader leaves than any other species, sometimes rough beneath.

32. *S. flexicaulis* Linn. : stem flexuous, smooth, angled; leaves ovate, acuminate, serrate, smooth; racemes erect, axillary; rays middle-sized,—and *S. latifolia* Muhl.

HAB. Woods. Can. to Car. Aug.—Oct. 2f.—*Stem* 2—3 feet high, slender and flexuous. *Racemes* scattered, as long as the stem, small, axillary, erect.

33. *S. axillaris* Pursh : stem smooth, terete, very erect ; leaves lanceolate, serrate, smooth ; racemes axillary, subglobose, erect ; rays elongated.

HAB. Woods. Can. to Virg. Aug.—Oct. 2f.—Stem 2—3 feet high. Leaves narrow-lanceolate.—This species, which is quite common, is distinguished from the former by its narrower leaves and by its compact, somewhat globular racemes, clustered along the stem.

34. *S. vigaurea* Linn. : stem erect, terete, pubescent and branching at the top ; cauline leaves lanceolate, serrate, attenuate at each end ; lower ones elliptic, somewhat hairy ; racemes erect ; rays elongated.

b. alpina Big. : a few inches in height, with obovate or lanceolate, mostly entire, leaves.

HAB. Woods on the sides of the White Mountains. Big. N. to Labrador. Aug.—Oct. 2f.—Stem flexuous, 1—3 feet high. Leaves elliptic or lanceolate, often with a long narrow base, serrate ; the upper ones nearly entire. Flowers in a large panicle, yellow ; rays 5—10.—Distinguished from all other species by its much larger flowers. Common to Europe, Asia and America. Var. *b.* is found, according to Dr. Bigelow, on the alpine summits of the White Mountains.

35. *S. rigida* Linn. : stem hairy and scabrous ; leaves ovate-oblong, rough with minute hairs ; those of the stem very entire, lower ones serrate ; flowering branches paniculate ; racemes compact ; scales of the involucre obtuse ; rays elongated.

HAB. Mountains. N. J. to Car. Aug.—Oct. 2f.—Stem 3—4 feet high, very pubescent when young. Flowers large, somewhat clustered near the summits of the branches, forming a somewhat fastigiate corymb.

36. *S. noveboracensis* Linn. : radical leaves ovate-oblong, petiolate ; stem nearly naked, with fastigiate branches.

HAB. Sandy fields. N. Y. Muhl. Sept. Oct. 2f.—Stem 3 feet high. Leaves rough. Flowers large.

37. *S. squarrosa* Muhl. : stem thick, pubescent above ; leaves smooth, lower ones very broad, spatulate oval, serrate, acute, margin scabrous ; the upper sessile, lanceolate-elliptic, entire ; racemes glomerate, rigid and pubescent ; involucre squarrose, many-flowered ; rays elongated, 10 or 12.

HAB. Rocky hills. Ver. to Geor. Sept. 2f.—Stem 2—3 feet high, always simple. Racemes axillary, thick and crowded, forming a compound spike.—Well distinguished by its squarrose involucre.

38. *S. puberula* Nutt. : stem simple and terete, somewhat pubescent ; leaves lanceolate, entire, on each side minutely pubescent, attenuated at each end ; radical ones subserrate ; racemes spiked, axillary, erect and condensed ; peduncles pubescent ; scales of the involucre linear-lanceolate, acute ; rays elongated, about 10.

HAB. Sandy fields. N. J. Nutt. 2l.—Stem brownish, 1—2 feet high. *Racemes* shorter than the lower leaves, collected into a leafy spike; *rays* bright yellow.—Resembles *S. nemoralis*.

* *Scales of the calyx agglutinated. Ray florets* 10—20, very small, yellow. *Receptacle setose.* EUTHAMIA. Nutt.

39. *S. lanceolata* Ait. : stem much branched, angular, hairy; leaves lanceolate-linear, very entire, nearly erect, 3—5-nerved, somewhat scabrous on the margin, nerves beneath minutely hispid; corymbs terminal, fastigate; branches clustered; rays 15—20, as long as the disk.—*Chrysocoma graminifolia* Linn.—*Euthamia graminifolia* Nutt.

HAB. Fields and meadows. Can. and N. S. N. to Subarc. Amer. Sept., Oct. 2l.—Stem 2—3 feet high, with the branches very numerous. *Flowers* numerous, clustered in a terminal corymb.

40. *S. tenuifolia* Pursh : stem angled, scabrous, with fastigate branches; leaves very narrow, linear, spreading, obscurely 3-nerved, scabrous on the margin, the axils leafy; corymbs terminal, fastigate, heads clustered; rays about 10, scarcely as long as the disk.—*S. lanceolata* var. *minor* Mich.—*Euthamia tenuifolia* Nutt.

HAB. Pine barrens. N. J. to Flor. Sept., Oct. 2l.—Stem 12—18 inches high. *Leaves* linear, covered with glandular dots. *Scales* of the involucre viscid.—Every way smaller than the preceding.

26. CHRYSOCOMA. Linn.

Involucre imbricate, oblong or hemispherical. *Style* scarcely exserted. *Receptacle* naked. *Pappus* pilose, scabrous. *Rays* crowded and unequal. *Acines* pubescent.

Syngenesia. Æqualis.

C. virgata Nutt : herbaceous and every where smooth; stem virgately branched; branches corymbiferous, fastigate; leaves all narrow and linear; involucre oblong, 3—4-flowered; scales glutinous and appressed.

HAB. Swamps. N. J. 2l.—Stem 18 inches high and branched nearly from the base. *Leaves* 1—2 inches long, smooth and thickish, somewhat remote. *Flowers* yellow.

27. BOLTONIA. L'Herit.

Involucre imbricate. *Rays* numerous. *Receptacle* conic, punctate. *Acines* flat and margined. *Pappus* consisting of many minute setæ, with two of them opposite and mostly elongated.

Syngenesia. Superflua.

1. *B. glastifolia* L'Herit : lower leaves serrate; flowers on short peduncles; seeds obcordate, conspicuously winged, pubescent; awns of the pappus 2, nearly of its own length.

HAB. Banks of streams. Penn. to Virg. July, Aug. 2l.—Stem 2 feet high. *Leaves* linear, alternate. *Flowers* reddish.

2. *B. asteroides* L'Herit: leaves entire; flowers on long peduncles; seeds oval, smooth, nearly awnless.—*Chrysanthemum carolinianum* Walt.

HAB. Swamps. N. S. to Car. W. to Ill. Aug. 24.—Stem 1—2 feet high. Leaves lanceolate. Rays flesh coloured.

SUBORDER IV. EUPATORINEÆ.

28. KUHNIA. Linn.

Involucre imbricate, cylindric. *Receptacle* naked. *Pappus* plumose. *Seed* pubescent, many-striate.

Syngenesia. Æqualis.

1. *K. eupatorioides* Linn.: smooth; leaves petiolate, broad-lanceolate, serrate; corymb terminal, few-flowered, crowded.

HAB. Shady woods. Penn. to Virg. Aug., Sept. 24.—Stem 2—3 feet high. Flowers white. Resembles an *Eupatorium*.

2. *K. critonia* Linn.: pubescent; leaves narrow-lanceolate or linear, petioled, punctate and glandular beneath; panicle terminal, divaricate.—*Critonia kuhnii* Mich.

HAB. Mountains. Penn. and Virg. Aug., Sept. 24.—Flowers pale yellow. Seed striate. Pappus of 24 rays.

29. EUPATORIUM. Linn.

Involucre imbricate, oblong. *Style* long, deeply cleft. *Receptacle* naked. *Pappus* hairy, generally scabrous. *Acines* smooth, 5-striate or angled. *Syngenesia. Æqualis.*

* *Involucre* 3—5-flowered.

1. *E. hyssopifolium* Linn.: stem erect; lowest leaves opposite, lanceolate-linear, slightly toothed; corymb nearly fastigiate; style much larger than the corol.

HAB. Pine woods. N. J. to Car. Aug., Sept. 24.—Stem 1—2 feet high. Leaves small, punctate. Flowers in a terminal corymb, white, sprinkled with glandular dots.

2. *E. linearifolium* Walt.: stem somewhat procumbent, villous towards the summit; stem leaves opposite, lanceolate-linear, rarely toothed, sometimes clustered; style as long as the corol.

HAB. Sandy fields. N. J. to Car. Aug.—Nov. 24.—Stem generally procumbent, 1—2 feet long, almost viscidly-pubescent. Flowers in an irregular corymb, white.—This species seems to have been confounded with the preceding, by both Walter and Michaux. I have adopted the characters given by Elliott.

3. *E. lanceolatum* Willd.: leaves sessile, distinct, oblong-lanceolate, scabrous, deeply serrate at base; scales of the involucre similar coloured.

HAB. Dry woods. Penn. to Virg. Aug.—Nov. 24.—Resembles the preceding.

4. *E. verbenafolium* Mich. : leaves sessile, ovate-lanceolate, oblong, notched and toothed, rugose, scabrous ; flowers small.—*E. teucrifolium* Willd. Pursh.

HAB. Low woods. N. Y. to Car. Aug.—Nov. 2f.—Stem 1—2 feet high, pubescent. Leaves opposite, somewhat deltoid, very hairy beneath. Flowers in a fastigiate corymb, small, white.—Michaux's name for this species has the claim of priority, and as Mr. Elliott remarks, is equally, perhaps more appropriate.

5. *E. melissoides* Willd. : leaves petiolate, ovate, somewhat obtuse, obtusely serrate, veined, nearly smooth.

HAB. Penn. Muhl. Aug.—Oct. 2f.—Resembles the last, but the leaves are smaller, petiolate and smooth. Still a doubtful species.

6. *E. rotundifolium* Linn. : leaves sessile, distinct, roundish-cordate, obtusely serrate, veined ; scales of the involucre acuminate.

HAB. Shady woods. Can. to Car. Aug.—Nov. 2f.—Stem 12—18 inches high. Leaves large. Flowers subfastigiate.

7. *E. pubescens* Willd. : stem paniculate, pubescent ; branches fastigiate ; leaves sessile, distinct, ovate, scabrous, veined ; lower ones doubly serrate ; upper ones subserrate.

HAB. Sandy woods. N. J. to Car. Aug.—Oct. 2f.—Stem 2 feet high, the lower branches opposite. Leaves thin and slightly scabrous. Flowers in a fastigiate corymb, white.

8. *E. ceanothifolium* Willd. : leaves petioled, ovate, acuminate, dentate, 3-nerved, glabrous.

HAB. Shady woods. N. Y. to Virg. Aug.—Nov. 2f.—Resembles *Ceanothus americanus* in its foliage exceedingly.

9. *E. ovatum* Big. : hairy and scabrous ; leaves opposite, sessile, ovate, obtusely toothed ; corymb fastigiate ; involucre about 8-flowered.

HAB. Low grounds. Mass. July, Aug. 2f.—A stout rough species, 3—4 feet high. Leaves perfectly ovate. Flowers white, in a level topped corymb.

10. *E. altissimum* Linn. : leaves subsessile, lanceolate, 3-nerved, attenuate at each end, pubescent ; lower ones serrate in the middle.

HAB. Sandy woods. Penn. to Virg. W. to the Miss. Aug.—Oct. 2f.—Stem 3—7 feet high.

11. *E. amatum* Pursh : leaves on short petioles, opposite and ternate, lanceolate-oblong, acute at each end, serrate, nearly smooth, somewhat rugose, reticular-veined beneath ; panicle corymbose-fasciculate, crowded ; scales of the involucre oblong, somewhat acute, coloured.

HAB. Mountains. N. J. Sept., Oct. 2f.—Stem 2 feet high, solid, smooth, purple ; peduncles tomentose. Flowers small, in a crowded corymbose panicle, pale purple.

12. *E. trifoliatum* Linn. : leaves petiolate, in threes or fours, ovate, attenuate at each end, serrate, somewhat scabrous.

HAB. Banks of streams. N. Y. to Virg. W. to Miss. Aug.—Oct. 24.—*Stem* 2—4 feet high, solid. *Flowers* in a large corymb, purple.

13. *E. sessilifolium* Linn.: stem nearly smooth; leaves sessile, clasping, distinct, ovate-lanceolate, round at base, serrate, very smooth.

HAB. Rocks on mountains. Mass. to Car. Aug., Sept. 24.—*Stem* obscurely angled. *Leaves* opposite, but not connate, minutely dotted beneath. *Flowers* in a terminal corymb, white.

14. *E. truncatum* Muhl.: stem pubescent; leaves sessile, clasping, distinct, lanceolate, truncate at base, serrate, nearly smooth.

HAB. Shady woods. Penn. to Car. July—Sept. 24.—*Stem* slightly hairy.—Very similar to *E. sessilifolium*, yet sufficiently distinct by a *stem* pubescent; *leaves* truncate at base, the serratures larger and more obtuse, and the *involucre* more pubescent. Willd.

15. *E. album* Linn.: leaves nearly sessile, oblong-lanceolate, somewhat scabrous, serrate; the inner scales of the involucre long, lanceolate, scarious, white.—*E. glandulosum* Mich.

HAB. Woods. Penn. to Car. Aug.—Oct. 24.—*Stem* erect, 1 1-2—2 feet high, villous. *Involucre* with glandular dots. *Flowers* in fastigate corymbs, white.

** *Involucre many-flowered.*

16. *E. purpureum* Linn.: stem smooth and glaucous, hollow; leaves petiolate, in fours or fives, ovate-lanceolate, serrate, rugose-veined, somewhat scabrous.

HAB. Wet woods. Can. to Virg. Aug.—Oct. 24.—*Stem* 5—6 feet high, purplish. *Flowers* in a large terminal corymb, pale purple.

17. *E. maculatum* Linn.: stem solid, furrowed; leaves petiolate, in fours or sixes, ovate-lanceolate, unequally serrate, pubescent beneath.

HAB. Low grounds. Can. to Car. Aug.—Oct. 24.—*Stem* 4—5 feet high, furrowed and dotted with purple. *Leaves* pubescent and slightly scabrous beneath. *Involucre* 5—8-flowered; corol purplish.

18. *E. verticillatum* Muhl.: stem solid, smooth; leaves petiolate, in threes or fours, ovate-lanceolate, acuminate at each end, unequally serrate, nearly smooth.—*E. purpureum* Mich.

HAB. Low grounds. N. Y. to Car. Aug.—Oct. 24.—*Stem* 4—6 feet high, tinged with purple. *Leaves* large, smooth, dotted beneath. *Flowers* in a terminal corymb, purple.

19. *E. punctatum* Willd.: stem solid, terete; leaves petioled, in fours or fives, ovate, acuminate, serrate, scabrous on both sides.

HAB. Mountains. N. J. and Penn. Aug.—Oct. 24.—This plant is described by Pursh as not so tall as the preceding—with the flowers purple and very ornamental. It may be only a variety.

20. *E. perfoliatum* Linn.: stem villous; leaves connate-perfoliate, oblong, becoming gradually narrower, serrate, rugose, tomentose beneath.—*E. connatum* Mich.

HAB. Swampy grounds. Can. to Flor. W. to Miss. Aug., Sept. 24.—Stem 2—4 feet high, hairy, branched at the top. Leaves large. Flowers in large corymbs, white.—The whole plant is bitter, and is used as a tonic. *Big. Med. Bot.* i. 33. *Anderson's Inaugural.* *Boneset. Thoroughwort.*

*** *Involucre simple.*

21. *E. aromaticum* Linn.: stem paniculate at the summit; leaves petiolate, ovate, acute, 3-nerved, obtusely serrate, smooth; flowers in corymbs; involucre simple.

HAB. Low woods. Penn. to Flor. Aug., Sept. 24.—Stem 2 feet high, pubescent. Flowers in small corymbs, large, white and aromatic.

22. *E. ageratoides* Linn.: leaves petioled, ovate, acuminate, 3-nerved, unequally and coarsely serrate, smooth; corymb many-flowered, divaricate; involucre subsimple.—*E. urticifolium* Mich.

HAB. Woods and rocky hills. Can. and N. S. W. to Miss. Aug.—Oct. 24.—Stem 2 feet high, round and smooth. Leaves opposite, the lower ones on long petioles and somewhat cordate. Flowers small, white, in small paniced corymbs.

30. CŒLESTINA. *Cassin. Spreng.*

Involucre imbricate. *Receptacle* naked. *Acines* angled, with a membranaceous crown. *Syngenesia. Æqualis.*

C. corulea Cassin: perennial; leaves petioled, cordate-ovate, somewhat obtuse, obtusely serrate, 3-nerved, scabrous; involucre many-leaved; flowers in corymbs.—*Eupatorium caelestinum* Linn.

HAB. Woods. Penn. to Car. W. to Miss. Aug.—Oct.—Stem 2—3 feet high, pubescent. Leaves on petioles, opposite, sometimes deltoid. Flowers in close fastigiate corymbs, fragrant, light blue. *Involucre* about 30-leaved, 40—60-flowered.

SUBORDER V. JACOBÆÆ.

31. MIKANIA.

Involucre 4—6-leaved, equal, 4—6-flowered. *Receptacle* naked. *Style* long, deeply cleft. *Pappus* pilose.

Syngenesia. Æqualis.

1. *M. scandens* Willd.: stem climbing, smooth; leaves cordate, repand-toothed, acuminate, with the lobes divaricate and unequal; flowers in corymbs.—*Eupatorium scandens* Linn.

HAB. Low grounds. Can. to Car. July—Sept. 24.—A twining plant. Flowers bluish-white, in axillary corymbs.

Climbing Thoroughwort.

2. *M. pubescens* Nutt.: stem climbing, pubescent; leaves cordate, acuminate, angularly toothed, and with the calyx pubescent; lobes divaricate, equal.

HAB. Low grounds. Penn. to Car. Sept. 2f.—*Flowers* pale purple, odorous, in paniculate corymbs which are axillary and terminal.—Nearly allied to the preceding.

32. CACALIA. Linn.

Involucre cylindric, oblong, the base only somewhat scaly. *Receptacle* naked. *Pappus* hairy. *Syngenesia*. *Æqualis*.

1. *C. suaveolens* Linn.: stem herbaceous; leaves petiolate, hastate-sagittate, serrate, smooth, similarly coloured on both sides; flowers corymbed, erect; involucre many-flowered.

HAB. Banks of streams. Penn. to Car. Aug., Sept. 2f.—*Stem* 3—4 feet high. *Leaves* large. *Flowers* white, with yellow anthers.—According to Mr. Nuttall it is a *Senecio*.

2. *C. atriplicifolia* Linn.: stem herbaceous; leaves petioled, smooth, glaucous beneath; radical ones cordate, toothed; cauline ones rhomboidal, somewhat toothed on each side; flowers corymbed, erect; involucre 5-flowered.

HAB. Low ground. Can. to Car. Aug., Sept. 2f.—*Stem* 3—6 feet high. *Peduncles* almost white. *Flowers* nearly white, in a small terminal corymb.

3. *C. reniformis* Willd.: stem herbaceous; leaves petioled, smooth, hairy on the veins beneath; radical ones broad-cordate, reniform, repand-toothed; cauline oblong, toothed, wedgeform and very entire at base; corymbs fastigiate; involucre many-flowered.

HAB. Low grounds. Penn. to Virg. W. to Miss. Aug., Sept. 2f.—*Stem* 5—8 feet high. *Flowers* white.

33. TUSSILAGO. Linn.

Involucre simple, swelling; scales equal, even with the disk and submembranous. *Receptacle* naked. *Pappus* simple. (*Flowers* mostly polygamous, dioecious.) *Fertile florets* ligulate or tubular. *Syngenesia*. *Superflua*.

1. *T. frigida* Linn.: scape with a fastigiate many-flowered thyrses; flowers radiate; leaves roundish, unequally toothed, tomentose beneath.

HAB. Mountains. Can. and N. S. June. 2f.—*Stem* 5—10 inches high. *Florets* of the ray white; of the disk pale purple.

2. *T. palmata* Ait.: scape with a fastigiate thyrses; flowers obscurely rayed; leaves roundish-cordate, half 7-lobed, incisely toothed, tomentose beneath.

HAB. Swamps. Fairhaven, Ver. Islands of Lake Huron. Nutt. N. to Labrador. April, May. 2f.—*The leaves* of this species

are aptly compared by Mr. Nuttall to those of the *Podophyllum pellatum*, although they are not so large.

3. *T. farfara* Linn. : scape 1-flowered, bracteate ; flowers-rayed ; leaves cordate, angular, toothed, pubescent beneath.

HAB. Low grounds. April. 2l.—Stem 6—10 inches high. Flowers appearing before the leaves. Introduced ? Colt's-foot.

34. SENECIO. Linn.

Involucre cylindric, scaly at base ; scales withered at the points. *Receptacle* naked. *Pappus* simple, capillary and copious. *Syngenesia*. *Superflua*.

* *Flowers* radiate.

1. *S. gracilis* Pursh : radical leaves on very long petioles, orbicular, subcordate, crenate ; cauline ones few, very remote, linear-oblong, dilated at base, incisely toothed ; peduncles very short, hairy, somewhat umbelled ; involucre smooth ; rays few, very short.

HAB. Rocky banks. Penn. N. to Subarc. Amer. May—Aug. 2l.—Stem a foot high, very slender. Flowers small, yellow.

2. *S. obovatus* Willd. : stem smoothish ; radical leaves obovate, crenate-serrate, petiolate ; cauline ones pinnatifid, toothed ; flowers somewhat umbelled, on long peduncles.

HAB. Rocky hills. N. Y. to Virg. June, July. 2l.—Stem a foot high, simple. Flowers in small terminal panicles. Rays 10—12, yellow.

3. *S. balsamita* Willd. : stem and peduncles villous at the base ; radical leaves oblong, serrate, petiolate ; lower cauline ones lyrate-pinnatifid, serrate ; upper pinnatifid-toothed ; flowers somewhat umbelled.—*S. lyratus* Mich.

HAB. Damp grounds. Can. to Car. N. to Subarc. Amer. June, July. 2l.—Stem 1—2 feet high, smooth except at the base. Flowers in small terminal umbels. Rays 10—12, deeply 3-cleft.

4. *S. aureus* Linn. : radical leaves ovate, cordate, serrate, petiolate ; cauline ones pinnatifid, toothed, the terminal segments lanceolate ; peduncles thickened ; flowers somewhat umbelled.

HAB. Shady woods. Can. to Car. N. to Subarc. Amer. June, July. 2l.—Stem 2 feet high. Radical leaves on long petioles. Flowers in a simple terminal umbel, yellow.

5. *S. dubius* Beck : woolly and tomentose ; radical leaves on long petioles, spathulate-obovate and ovate, somewhat acute and pinnatifid ; cauline ones 2—3, linear, pinnatifid ; flowers corymbd.—*S. heterophyllus* Nutt. Torr.—*Cineraria heterophylla* Pursh.—*C. dubia* Spreng.

HAB. Rocks in Blue Mountains. Penn. Pursh. May, June. 2l.—Stem about a span high. Flowers deep yellow.—I have followed Mr. Nuttall and Dr. Torrey in placing this plant under genus *Senecio*, although there is still some doubt whether it really belongs to this or to *Cineraria*. Mr. Nuttall thinks it a variety of *C. integrifolia* of Willdenow and Pursh, a plant which

is still retained under the latter genus by Dr. Richardson, (*App. to Frank. Jour.*) and by Dr. Torrey, in his account of plants collected during a journey to the Rocky Mountains by Dr. E. James. I have changed the specific name, as that of *heterophyllus* had been long since applied to another *Senecio* from the Cape of Good Hope.

** *Florets tubular* : those of the ray wanting.

6. *S. vulgaris* Linn. : leaves mostly clasping, pinnatifid, toothed ; flowers in crowded corymbs.

HAB. Cultivated grounds. N. S. May—Oct. 24.—Stem 18 inches high. Flowers yellow. Introduced. Groundsel.

7. *S. hieracifolius* Linn. : stem virgate, paniculate ; leaves clasping, oblong, acute, unequally, acutely and deeply toothed ; involucre smooth ; seeds pubescent.

HAB. Road sides, &c. Can. to Car. July, Aug. ☉.—Stem 2—6 feet high, succulent, branching towards the summit. Flowers in a compound terminal panicle, white. Fire Weed.

8. *S. elongatus* Pursh. : smooth ; radical leaves spatulate, serrate, attenuated into a petiole ; cauline ones pinnatifid, toothed, very remote ; peduncles elongated, umbelled, corymb.

HAB. Rocks on banks of streams. Penn. July, Aug. 24.—Resembles *S. balsamitæ*, but is destitute of ray florets.

SUBORDER VI. HELIANTHÆ.

35. HELENIUM. Linn.

Involucre simple, many parted. *Rays* deeply 3-cleft. *Pappus* chaffy ; chaff 5-awned. *Receptacle* globose, naked, chaffy on the margin. *Acines* villous.

Syngenesia. Superflua.

H. autumnale Linn. : leaves lanceolate, serrate, decurrent ; flowers in corymbs ; florets of the disk 5-cleft ; of the ray flat, reflexed.

HAB. Low grounds. Can. to Car. W. to Miss. Sept., Oct. 24.—Stem 2—3 feet high, winged by the decurrent leaves. Flowers in small corymbs, yellow.—Whole plant intensely bitter.

American Sneezewort.

36. HELIANTHUS. Linn.

Involucre imbricate, generally squarrose, leafy. *Receptacle* chaffy, flat. *Pappus* 2-leaved, caducous.

Syngenesia. Frustranea.

* *Florets of disk dark purple.*

1. *H. atrorubens* Linn. : hispid ; stem naked towards the summit, loosely paniculate ; leaves opposite, spatulate, oblong-ovate, crenate, 3-nerved, scabrous on the upper side ; scales of the involucre ovate-lanceolate, as long as the disk.

HAB. Gravelly soil. Penn. to Car. W. to Miss. Aug., Sept. 2l.—Stem 3—4 feet high, somewhat branched. Lower leaves very large. Flowers in a loose terminal panicle. Rays yellow; disk dark purple.

2. *H. angustifolius* Linn. : stem slender, slightly scabrous; leaves narrow-lanceolate, entire, glaucous beneath, with the margin revolute, the upper ones alternate; scales of the involucre linear-lanceolate, ciliate, spreading; chaff 3-toothed.—*Rudbeckia angustifolia* Willd.

HAB. Cedar swamps. N. J. to Flor. Sept.—Nov. 2l.—Stem 2—3 feet high, sparingly branched. Leaves opposite below, alternate above, scabrous on the upper surface. Flowers small, terminal. Rays about 12, yellow; disk dark purple at the summit.—I have adopted the specific description of Mr. Elliott.

** Florets of the disk yellowish.

† Leaves opposite.

3. *H. divaricatus* Linn. : stem smooth, branched; leaves ovate-lanceolate, 3-nerved scabrous above, smooth beneath; panicle trichotomous; flowers small.

HAB. Woods. Can. to Car. Aug.—Oct. 2l.—Stem 5—6 feet high, di- and tri-chotomously divided. Leaves on long petioles, rounded at base, and tapering to a long almost acuminate point; upper ones often alternate. Flowers small, in terminal panicles.

4. *H. trachelifolius* Willd. : leaves ovate-lanceolate, acuminate, serrate, 3-nerved, very scabrous on both sides; scales of the involucre linear-lanceolate, ciliate, outer ones larger.—*H. gigas* Mich.

HAB. Woods. Can. to Car. Aug.—Oct. 2l.—Stem 3—4 feet high, branching towards the summit, very scabrous. Leaves attenuated at base into a short petiole. Flowers in a loose terminal panicle. Rays 10—12.—This species is united by Sprengel with *H. decapetalus*.

5. *H. frondosus* Willd. : stem smooth below; leaves ovate, acutely serrate, peduncles scabrous; involucre squarrose, undulate, leafy, ciliate; rays 8-flowered.

HAB. Woods. Can. and N. S. Aug., Sept. 2l.—Stem 4 feet high. Flowers small.—Resembles *H. decapetalus* and *multiflorus* in several respects, but is distinct. Pursh.

6. *H. mollis* Willd. : stem smooth below, scabrous near the summit; leaves ovate-lanceolate, acute, serrate, scabrous above, pubescent and hoary beneath; flowers-few, terminal.

HAB. Low grounds. Penn. to Car. July—Sept. 2l.—Stem 3—6 feet high, purple, smooth except near the top. Flowers few, in a terminal panicle. Rays about 10.—This is the *H. mollis* of Elliott, which, although it agrees in most points with Pursh's description, is not according to the former author *H. tomentosus* of Michaux.

†† Upper leaves alternate.

7. *H. giganteus* Linn. : leaves alternate, lanceolate, serrate, scabrous,

obscurely 3-nerved, tapering at each end, nearly sessile, ciliate at base ; scales of the involucre lanceolate, ciliate.

HAB. Dry swamps. Can. to Car. Aug. Sept. 2f.—*Stem* very tall, branching, rough near the summit. *Leaves* paler and often nearly smooth beneath. *Flowers* in a loose terminal panicle. *Rays* 12—14, not large.

8. *H. altissimus* Linn. : leaves alternate, ovate-lanceolate, serrate, scabrous, 3-nerved, tapering towards the summit, petioled ; petioles ciliate ; scales of the involucre lanceolate, ciliate.

HAB. Mountain meadows. Penn. to Car. July—Sept. 2f.—Resembles the preceding, but the *stem* is smooth and purple. *Leaves* petiolate, broader and almost ovate-lanceolate. *Scales* of the involucre shorter. *Florets* of the ray about 16. Willd.—Pursh says the chaff of the receptacle is green in this species, but black in the preceding.

9. *H. strumosus* Linn. : leaves ovate, acuminate, serrate, 3-nerved, scabrous beneath ; scales of the involucre linear-lanceolate, ciliate at base.

HAB. Can. and N. Eng. Aug.—Oct. 2f. Pursh.—Under the above name Mr. Elliott describes a plant found in North-Carolina ; but it seems doubtful whether it is really the same. *Stem* tall, slender, sparingly branched and smooth. *Leaves* lanceolate or ovate-lanceolate, acuminate, serrate, thin, slightly scabrous on both sides, paler beneath. *Flowers* small, few, terminal. *Florets* of the ray 8—10. There are probably several species of this genus in the N. S. not now credited to it.

10. *H. decapetalus* Linn. : leaves ovate, acuminate, remotely serrate, 3-nerved, scabrous ; scales of the involucre ovate-lanceolate, nearly equal, somewhat ciliate.—*H. macrophyllus* Willd. Pursh.?

HAB. Rocky woods. Can. to Car. Aug.—Oct. 2f.—*Stem* 3—4 feet high, branching. *Leaves* alternate above, the petioles ciliate at base. *Flowers* large, in terminal panicles.

11. *H. multiflorus* Linn. : leaves 3-nerved, scabrous, lower ones cordate ; upper ones ovate ; florets of the ray numerous ; scales of the involucre lanceolate.

HAB. Mountain woods. Penn. to Car. July—Sept. 2f.—*Stem* and peduncles scabrous. *Scales* of the involucre 40—50, loosely imbricated, not squarrose.

12. *H. tuberosus* Linn. : leaves 3-nerved, scabrous ; lower ones cordate-ovate ; upper ones ovate-acuminate ; petioles ciliate.

HAB. Fields. N. S. July—Sept. 2f.—*Root* tuberous. *Stem* 4—8 feet high. Naturalized in various parts of the N. S.

Jerusalem Artichoke.

37. HELIOPSIS. Pers.

Involucre imbricate ; scales subovate, nearly equal. *Rays* large and linear. *Receptacle* chaffy, conic ; chaff lanceolate. *Seeds* 4-angled. *Pappus* none. *Syngenesia*. *Superflua*.

H. laevis Pers. : leaves opposite, ovate, serrate, 3-nerved.—*Bupthalmum helianthoides* Willd.—*Helianthus laevis* Linn.

HAB. Banks of streams. N. Y. to Flor. Aug., Sept. 24.—
Stem 3—5 feet high, dichotomously branched above. Flowers solitary, terminal and in divisions of the stem, on long peduncles, large, yellow.

38. RUDBECKIA. Linn.

Involucre nearly equal; scales in a double series. *Receptacle* conic, chaffy. *Pappus* a 4-toothed margin.

Syngenesia. Frustranea.

* *Involucre imbricate; chaff of the receptacle mucronate.*

1. *R. purpurea* Linn. : very rough; lower leaves broad-ovate, attenuate at base, remotely toothed; cauline ones lanceolate-ovate, acuminate at each end, nearly entire; ray florets very long, deflexed, bifid.

HAB. High grounds. N. Y. to Flor. W. to Miss. July—Sept. 24.—Stem 3—4 feet high, sparingly branched, differing somewhat in the degree of roughness. Leaves also varying much in length and breadth. Flowers large, terminal; rays purple; disk brown.—This plant has been found by Mr Edward Dunn, on the banks of the Hudson, about two miles below this city, which I believe is the most northern station yet discovered. It differs considerably in its generic character from most of the other species, and Mr. Elliott, indeed, suggests its separation from them.

** *Involucre nearly equal; chaff unarmed.*

2. *R. fulgida* Ait. : stem hispid, the branches long, virgate and 1-flowered; leaves oblong-lanceolate, denticulate, hispid, narrowed and slightly cordate at base; scales of the involucre as long as the ray; chaff lanceolate.—*R. chrysomela* Mich.

HAB. Mountains. Penn. to Car. July—Oct. 24.—Stem 2—3 feet high, branched. Ray florets 12—14, 2-cleft at the summit, yellow, scarcely longer than the leafy scales of the involucre.

3. *R. hirta* Linn. : very hirsute; stem virgate, sparingly branched, 1-flowered; peduncles naked; leaves ovate-spathulate, 3-nerved, serrate, hairy; scales of the involucre imbricate, in a triple series, shorter than the ray; chaff obovate, acute.

HAB. Mountains. N. S. to Flor. W. to Miss. Aug., Sept. 24.—Stem 2—3 feet high, scabrous and hairy. Leaves alternate, sessile or subclasping, very hairy. Flowers solitary, terminal. Ray florets about 14, bifid, hairy, yellow, twice as long as the involucre.

4. *R. triloba* Linn. : hairy-hispid; stem paniculate; branches divaricate, many-flowered, leafy; leaves lanceolate, acuminate at each end, serrate; the lower ones 3-lobed; scales of the involucre linear, deflexed, as long as the ray.

HAB. Mountains. N. S. to Car. W. to Miss. Aug., Sept.

2f.—Stem 4—5 feet high. Flowers numerous, on the summits of the branches. Ray florets about 8, yellow; disk dark purple.

5. *R. laciniata* Linn.: stem smooth; lower leaves pinnate, the segments 3-lobed; upper ones ovate; pappus crenate.

HAB. Borders of swamps. Can. to Car. W. to Miss. Aug., Sept. 2f.—Stem 4—6 feet high, branching. Leaves rough, the lower ones pinnate or pinnatifid, with about 5 segments; upper ones nearly sessile, ovate or 3-cleft. Flowers large, yellow, in a loose terminal panicle. Ray florets about 6, 3-toothed.

Cone Flower.

6. *R. digitata* Ait.: stem smooth; lower leaves pinnate, the segments pinnatifid; the upper ones simple, pinnate; the highest 3-cleft; pappus crenate.

HAB. Mountains. N. S. to Geor. W. to Miss. Aug.—Oct.

2f.—Stem 5—6 feet high. Leaves thin, the segments more or less toothed, generally lanceolate. Flowers terminating the branches, yellow.

7. *R. pinnata* Mich.: stem furrowed, hispid; leaves all pinnate; lower segments sometimes 2-parted; pappus entire.

HAB. Mountains. Penn. Muhl. W. to Miss. S. to Geor.

July—Oct. 2f.—Flowers very large, yellow. Rays long reflexed; disk ovate, purple.

39. VERBESINA. Linn.

Involucre many-leaved, the leaves in a double series. Rays about 5. *Receptacle* chaffy. *Pappus* 2-awned.

Syngenesia. Superflua.

V. siegesbeckia Mich.: stem winged; leaves opposite, ovate-lanceolate, acuminate at each end, acutely serrate; corymb brachiate; branches irregularly many-flowered at the summit.—*Siegesbeckia occidentalis* Linn.

HAB. Shady woods. Penn. to Car. July—Sept. 2f.—Root creeping. Stem erect, 4—6 feet high, 4-winged. Flowers in large somewhat fastigate corymbs, yellow; rays 3-toothed.

40. CALLIOPSIS. Reichenbach.

Involucre double; inner one many-parted, coloured; outer erect. *Receptacle* chaffy. *Pappus* none.

Syngenesia. Frustranea.

C. rosea Spreng.: small and very smooth; stem mostly simple; leaves linear, entire, axils leafy; flowers few, on long peduncles, axillary, terminal; rays unequally 3-toothed; seeds very entire, naked.—*Coreopsis rosea* Nutt.

HAB. Swamps. N. J. to Geor. Aug. 2f.—Stem 12 inches high, smooth and generally simple. Leaves 2 inches long, op-

posite and connate at base. *Flowers* small, few, on peduncles 3 inches long, pale red.

41. COREOPSIS. Linn.

Involucre double, each many-leaved; the inner one equal, subcoriaceous and coloured. *Receptacle* chaffy, scales flat. *Acines* compressed, emarginate, bidentate; dentures rarely awned. *Syngenesia. Frustranea.*

* *Leaves opposite, divided.*

1. *C. trichosperma* Mich.: smooth; leaves generally quinate, pinnate; segments linear-lanceolate, serrate; flowers in corymbs; leaflets of the outer involucre spathulate, ciliate-serrate; rays entire; acines cuneate, 2—4-toothed.

HAB. Swamps. N. J. and Car. Aug., Sept. ♂.—*Stem* 2—3 feet high, branching towards the top. *Flowers* peduncled, opposite and terminal; *rays* about 8, lanceolate, yellow.

Tickseed Sunflower.

2. *C. tripteris* Linn.: smooth; leaves petiolate, lanceolate, very entire; radical ones pinnate; cauline ternate; rays entire; acines obovate, naked at the summit.

HAB. Mountains. Penn. to Car. Aug., Sept. ♀.—*Stem* 4—6 feet high, terete. *Flowers* rather small, in a loose terminal corymb; *rays* about 8, yellowish.

** *Leaves alternate.*

3. *C. gladiata* Walt.: stem smooth, dichotomous towards the summit; leaves narrow-lanceolate, entire, thick, tapering into a petiole; acines obovate, winged, the wings serrulate; pappus 2-awned, bristly. —*C. dichotoma* Mich.

HAB. Swamps. N. J. and Car. July—Sept. ♂.—*Stem* 2—3 feet high, simple and slender. *Leaves* thick, 3—6 inches long. *Flowers* terminal; *rays* 8, dilated, trifid-yellow; *disk* dark purple.

4. *C. aspera* Pursh: leaves lanceolate-linear, rough; upper ones alternate; lower opposite; stem 1-flowered.

HAB. In Maryland. Pursh.

42. ACTINOMERIS. Nutt.

Involucre simple, many-leaved; leaves nearly equal. *Rays* remote, elongated, (4 to 8.) *Receptacle* small and chaffy, the scales embracing the margin of the acines. *Acines* compressed and margined, with the summit persistently 2-awned. *Syngenesia. Frustranea.*

A. ? squarrosa Nutt.: stem erect, winged, pubescent towards the summit; leaves lanceolate, serrate, scabrous; panicle loose, leafy;

involucre spreading ; receptacle nearly globose.—*Coreopsis alternifolia* Linn.—*Verbesina coreopsis* Mich. Spreng.

HAB. Penn. to Car. July—Sept. 24.—*Stem* 3—4 feet high. *Leaves* alternate. *Flowers* varying, yellow and white.—There seems to be still some doubt with regard to its generic character.

43. BIDENS. Linn.

Involucre double, the outer unequal. *Ray* florets frequently wanting. *Receptacle* chaffy, flat. *Pappus* of 4 reflected or erect and retrose scabrous awns. *Acines* 4-angled.

Syngenesia. Frustranea.

1. *B. cernua* Linn. : flowers subradiate, cernuous ; outer involucre as long as the flower ; leaves lanceolate, subconnate, dentate.

HAB. Near ponds and ditches. Can., N. Y. and Penn. W. to Miss. Aug.—Sept. ☉.—*Stem* 1—2 feet high. *Ray* florets as in all the species, yellow, often wanting.—This plant is sometimes not more than 8 inches high, with very small erect flowers, when it constitutes the variety *minima*.

Water Beggar-ticks.

2. *B. chrysanthemoides* Mich. : flowers radiate, nodding ; florets of the ray thrice as long as the nearly equal involucre ; leaves oblong, tapering at each end, toothed ; connate at base.

HAB. Wet places. N. Y. to Car. Aug., Sept. ☉.—*Stem* 1—3 feet high. *Leaves* glabrous. *Flowers* erect, yellow. *Acines* commonly with 4 awns.—From the remarks of Mr. Elliott, it is not improbable that several distinct species are covered under the above name.

3. *B. frondosa* Linn. : flowers discoid ; outer involucre six times as long as the flower, its leaflets ciliate at base ; lower leaves pinnate ; upper ones ternate, lanceolate, serrate.

HAB. Woods and fields. N. Y. to Car. Aug., Sept. ☉.—*Stem* 3—4 feet high, branching. *Flowers* terminal, erect, surrounded by a large leafy involucre. *Rays* none. *Acines* 2-awned.

Burr Marygold.

4. *B. connata* Willd. : flowers discoid ; outer involucre thrice as long as the flower ; cauline leaves ternate ; lateral ones connate ; floral oblong-lanceolate.

HAB. Fields. Can. to Car. July—Sept. ☉.—*Stem* 2 feet high. *Peduncles* opposite, 1-flowered.

5. *B. bipinnata* Linn. : flowers somewhat rayed ; outer involucre as long as the inner ; leaves bipinnate ; leaflets lanceolate-pinnatifid.

HAB. Near cultivated grounds. Penn. to Car. July—Sept. ☉.—*Stem* 2—4 feet high. *Flowers* on long, mostly terminal peduncles. *Rays* 3, or none, obovate, yellow.

6. *B. beckii* Torr. : stem subsimple ; submerged leaves capillaceous-multifid ; emersed ones lanceolate, connate, acutely serrate or lacinate ; flowers rayed ; the rays longer than the involucre.

HAB. In water. Can. and N. Y. July, Aug. 2f.—*Stem* 2—3 feet long, simple or with very small and slender branches arising from the axils of the upper leaves. *Lower leaves* very multifid, capillary, as in *Ranunculus aquatilis*; upper ones about an inch and a half long, broadly lanceolate, attenuated at each extremity, deeply serrated. *Flowers* solitary, at the extremity of the stem, rather large, yellow. *Rays* much longer than the involucre.—This species was first discovered in a pond near Schenectady, N. Y. It has since been found in Canada, by Mr. Goldie, and more recently in the western part of N. Y. by Drs. Asa Gray and William Aikin.

Water Marygold.

44. POLYMNIA. Linn.

Involucre double; the outer one 4—5-leaved; the inner 10-leaved; leaflets concave. *Receptacle* chaffy. *Pappus* none. *Syngenesia. Necessaria.*

1. *P. canadensis* Linn.: viscid and villous; leaves denticulate, acuminate; lower ones pinnatifid, upper 3-lobed or entire.

HAB. Shady hills. Can. to Car. June, July. 2f.—*Stem* 2—4 feet high. *Leaves* thin, slightly scabrous. *Flowers* in a loose terminal panicle, yellow.

2. *P. wedalia* Linn.: leaves opposite, 3-lobed, acute, decurrent into a petiole; lobes angled and sinuate; rays elongated.

HAB. Mountains. Penn. to Car. July—Sept. 2f.—*Stem* 3—5 feet high, terete. *Leaves* opposite or alternate. *Flowers* in a loose terminal panicle; rays about 10, 3-toothed, yellow.

45. SILPHIUM. Linn.

Involucre leafy, squarrose. *Receptacle* chaffy. *Seeds* compressed, obcordate-marginate, 2-toothed.

Syngenesia. Necessaria.

1. *S. perfoliatum* Linn.: stem 4-angled, smooth; leaves opposite, connate, ovate, serrate.

HAB. Mountains. Penn. to Car. Aug. 2f.—*Stem* 6 feet high, angled, smooth. *Peduncles* terminal and from the axils of the highest leaves; rays 24, yellow.

2. *S. trifoliatum* Linn.: stem 6-angled, smooth; leaves verticillate by threes, ovate-lanceolate, unequally toothed and serrate, scabrous on the upper surface; upper ones sessile, panicle trichotomous.—*S. ternatum* Mich.

HAB. Mountains. N. S. Torr. S. to Car. Sept., Oct. 2f.—*Stem* 4—6 feet high, mostly purple. *Flowers* in a terminal corymb; rays about 14, long, bright yellow.

3. *S. ternatum* Retz: stem terete, smooth; leaves verticillate by threes, petiolate, lanceolate, slightly toothed, ciliate at base, somewhat scabrous; upper ones scattered, sessile; panicle dichotomous; involucre ciliate.

HAB. Penn. to Car. July. 2f.—Stem 4—6 feet high. Flowers in a loose terminal corymb; rays 14, long, yellow.—Mr. Elliott doubts whether the two last species are sufficiently distinct.

SUBORDER VII. AMBROSIACEÆ.

46. IVA. Linn.

Involucre about 5-leaved or 5-parted. *Florets* of the ray 5, naked. *Receptacle* bristly. *Pappus* none. *Acines* obovate. (*Anthers* approximate, not united.) *Syngenesia*. *Necessaria*.

I. frutescens Linn.: shrubby; leaves opposite, lanceolate, deeply serrate, slightly scabrous; heads globular-depressed.

HAB. Sea coast. N. Y. to Flor. Aug. 2f.—Shrub 3—8 feet high, with numerous opposite branches and leaves. Flowers small, in axillary leafy raceme, forming a large terminal panicle.

47. AMBROSIA. Linn.

Monoecious. STERILE FL. *Involucre* 1-leaved, hemispherical, many-flowered. *Anthers* approximate but not united. *Receptacle* naked. FERTILE FL. *Involucre* 1-leaved, entire or 5-toothed, 1-flowered. *Corol* none. *Styles* 2. *Nut* formed from the indurated calyx, 1-seeded.

Monoecia. *Pentandria*.

1. *A. integrifolia* Muhl.: leaves ovate, sessile, acuminate, serrate, hispid on both sides, ciliate at base; racemes terminal and mostly ternate.

HAB. Near ponds and ditches. Penn. and Virg. July—Sept. ☉.—Pursh.

2. *A. bidentata* Mich.: very hairy; leaves closely sessile, simple, lanceolate, 1—2 toothed on each side near the base; fruit 4-sided, 4-spined below the summit.

HAB. Allegany mountains. W. to Illinois.—Perhaps not in the limits assigned to the present work. July—Sept. ☉.

3. *A. trifida* Linn.: hirsute, rough; leaves 3-lobed, serrate; the lobes oval-lanceolate, acuminate; fruit 6-spined below the summit.

HAB. Banks of streams. N. Y. to Car. W. to Miss. July—Sept. ☉.—Stem 4—8 feet high. Leaves very large. Flowers in large terminal panicles composed of long axillary and terminal spikes.

4. *A. elatior* Linn.: stem virgate; leaves bipinnatifid, nearly smooth; petioles conspicuously ciliate; racemes terminal.

HAB. Old fields. Can. to Car. Aug., Sept. ☉.—Stem 1—4 (at the south 4—7) feet high. Flowers in paniculate racemes. Nut with 6 spines. Hog Weed.

5. *A. artemisiifolia* Linn. : leaves bipinnatifid, hoary underneath, the uppermost pinnatifid ; racemes by threes, terminal ; branches fastigiate.—*A. absinthifolia* Mich.

HAB. Fields. Penn. to Car. W. to Miss. Aug., Sept. ☉.—

Stem 4—6 feet high. *Leaves* opposite below, alternate above.

Racemes loosely paniculate. *Spines* of the fruit very short.

6. *A. paniculata* Mich. : stem branching, paniculate at the summit, and with the petioles villous ; leaves green on both sides, bipinnatifid, the segments lanceolate ; fruit somewhat clustered, small, obovate, slightly awned.—*Iva monophylla* Walt.

HAB. Old fields. Can. to Flor. July—Sept. ☉. Pursh.—

Stem 2—4 feet high. *Flowers* in simple terminal and axillary racemes.

7. *A. heterophylla* Muhl. : stem paniculate ; cauline leaves pinnatifid, subdentate, petiolate, those of the branches lanceolate, sessile ; petioles with long ciliæ ; racemes terminal, solitary.—*A. peruviana* Willd.

HAB. Banks of streams. Penn. July—Sept. ☉. Muhl.

48. XANTHIUM. Linn.

Monoecious. STERILE FL. *Involucre* imbricate. *Anthers* approximate, but not united. *Receptacle* chaffy. FERTILE FL. *Involucre* 2-leaved, 1-flowered. *Corol* none. *Drupe* dry, muricate, 2-cleft. *Nut* 2-celled.

Monoecia. Pentandria.

1. *X. strumarium* Linn. : stem unarmed, branching ; leaves cordate, lobed, serrate, scabrous, 3-nerved ; fruit elliptic, pubescent, armed with rigid hooked bristles.

HAB. Road sides. N. Y. to Car. W. to Miss. Aug., Sept.

☉.—*Stem* 3—6 feet high. *Flowers* in axillary racemes.

Clot-weed.

2. *X. macrocarpon* De Cand. : stem unarmed, spotted ; leaves cordate, lobed, obscurely sinuate-toothed, scabrous, 3-nerved ; fruit oval, densely armed with short rigid uncinate bristles ; horns incurved.—*X. orientale* Linn.—*X. maculatum* Raf.

HAB. Near salt water. N. S. Aug. ☉.—*Stem* purple, spotted.

Fruit very large, woolly.

3. *X. spinosum* Linn. : spines ternate ; leaves 3-lobed.

HAB. Waste ground. Md. to Geor. ☉.—*Stem* 3 feet high.

Flowers small.

Prickly Clot-weed.

SUBORDER VIII. ANTHEMIDEÆ.

49. SPARGANOPHORUS. Mich.

Involucre somewhat globose, imbricate, with the scales recurved at the point. *Receptacle* naked. *Acines* crowned with a small cartilaginous cup. *Syngenesia. Æqualis.*

S. verticillatus Mich.: leaves linear, verticillate; heads few, terminal; pappus campanulate, 5-toothed.

HAB. In shallow water. N. J. to Flor. Aug., Sept. 24.—*Stem* a foot high, simple. *Leaves* linear, an inch long, 6—8 in a whorl. *Flowers* purple.

50. TANACETUM. Linn.

Involucre imbricate, hemispherical, scales acuminate. *Rays* of the corol obsolete, trifid. *Receptacle* naked. *Pappus* sub-emarginate. *Syngenesia. Superflua.*

T. vulgare Linn.: leaves doubly pinnate, incisely serrate; corymb terminal.

HAB. Road sides, &c. Aug., Sept. 24.—*Stem* 2—4 feet high. *Flowers* in a dense terminal corymb, yellow.—Whole plant odorous. Naturalized. *Tansey.*

51. ARTEMISIA. Linn.

Involucre imbricate; scales round, connivent. *Florets* of the ray none. *Pappus* none. *Receptacle* naked, or slightly villous. *Syngenesia. Superflua.*

1. *A. vulgaris Linn.*: leaves tomentose beneath; cauline ones pinatifid; segments lanceolate, subdentate, acute; floral ones undivided, linear, lanceolate; flowers nearly sessile, oblong, erect; involucre tomentose.

HAB. Banks of streams. Can. and N. S. N. to Arc. Amer. Sept.—Nov. 24.—*Stem* 2—3 feet high. *Flowers* few, purplish. *Mugwort.*

2. *A. canadensis Mich.*: stem herbaceous and paniculate, mostly erect; radical leaves subpinnate, somewhat tomentose; cauline subpinnate; segments subsetaceous, incised, flat, nearly smooth; flowers partly glomerate and sessile; involucre subglobose; scales oval, scarious.—*A. campestris Pursh.*

HAB. Sandy shores of Lake Erie, &c. W. to Miss. N. to Hudson's Bay. July, Aug. 24.—*Stem* sometimes decumbent at base, mostly erect, 3—4 feet high. *Leaves* of linear segments, singly or doubly pinatifid or subpinnate. *Flowers* small, very numerous, in terminal panicles resembling spikes. *Wild Wormwood.*

3. *A. caudata Mich.*: stem herbaceous, simple, densely and pyramidally paniculate; radical and lower cauline leaves sub-bipinnate, pubescent; upper subpinnate; segments subsetaceous, alternate, divaricate, somewhat convex; flowers pedicillate, erect, globose ovate.

HAB. Sea shores. N. J. to N. Car. 24.—*Stem* 2—6 feet high.

52. CHRYSANTHEMUM. Linn.

Involucre hemispherical, imbricate; innermost scales scarious. *Receptacle* naked. *Pappus* none. *Syngenesia. Superflua.*

C. leucanthemum Linn.: stem erect, branching; leaves clasping, lanceolate, deeply notched and toothed at the base.

HAB. Fields, &c. Can. to Car. June—Aug. 2f.—Stem 1—2 feet high, sparingly branched. Flowers solitary on the branches, large; rays white; disk yellow. Introduced. Ox-eye Daisy.

53. ANTHEMIS. Linn.

Involucre hemispherical, subequal. *Rays* more than 5. *Receptacle* chaffy; chaff flat, with rigid acuminate points. *Pappus* none or a membranous margin.

Syngenesia. Superflua.

1. *A. arvensis* Linn.: leaves bipinnate; segments lanceolate-linear; receptacle conic; chaff lanceolate; acines crowned with a margin.

HAB. Waste grounds. Penn. to Virg. Aug., Sept. ☉.—Stem branched and with the leaves hoary-pubescent. Flowers at the end of each branch, large; disk yellow; rays broad, white. Introduced. Common Chamomile.

2. *A. cotula* Linn.: leaves bipinnatifid; segments subulate, 3-parted; receptacle conic; chaff setaceous; pappus none.

HAB. Road sides. N. Y. to Car. W. to Miss. June—Oct. ☉.—Stem a foot high, erect, branched. Flowers solitary, terminal; disk convex, yellow; rays white.—An exotic, now almost every where naturalized. May-weed.

54. ACHILLEA. Linn.

Involucre ovate, imbricate. *Rays* 5—10, roundish. *Receptacle* chaffy. *Pappus* none. *Syngenesia. Superflua.*

1. *A. ptarmica* Linn.: leaves linear-lanceolate, acuminate, equally and acutely serrate, smooth.

HAB. Dry swamps. Arc. Amer. Can. and N. Y. Aug., Sept. 2f.—Pursh. Stem 1—3 feet high, erect, terminating in a large corymb. Flowers white. Introduced. Sneezewort.

2. *A. millefolium* Linn.: stem furrowed; leaves bipinnate, slightly hairy; segments linear, toothed, acute.

HAB. Fields and road sides. Can. to Car. N. to Arc. Amer. W. to Miss. June—Aug. 2f.—Stem erect, branched at the top. Flowers in large dense terminal corymbs; rays 4 or 5, white or rose coloured.—A powerful astringent. Introduced. Yarrow.

ORDER LXVIII. CAMPANULACEÆ. Lind.

Calyx superior, usually 5-lobed, (sometimes 3—8,) persistent. *Corol* monopetalous, inserted into the top of the calyx, usually 5-lobed, (sometimes 3—8,) withering on the fruit, regular; æstivation valvate. *Stamens* inserted into the calyx

alternately with the lobes of the corol, to which they are equal in number; *anthers* 2-celled, distinct; *pollen* spherical. *Ovary* inferior, with 2 or more polyspermous cells opposite the stamens or alternate with them; *style* simple, covered with collecting hairs; *stigma* naked, simple, or with as many lobes as there are cells. *Fruit* dry, crowned by the withered calyx and corol, dehiscing by lateral irregular apertures, or by valves at the apex, always loculicidal. *Seeds* numerous, attached to a placenta in the axis; *embryo* straight, in the axis of fleshy albumen; *radicle* inferior.

Herbs or *undershrubs* yielding a white milk. *Leaves* simple or deeply divided, without stipules:

1. CAMPANULA. Linn.

Calyx mostly 5-cleft. *Corol* campanulate, the base closed with 5 staminiferous valves. *Stigma* 3—5-cleft. *Capsule* inferior, 3- (rarely 5-) celled, opening by lateral pores.

Pentandria. Monogynia.

1. *C. rotundifolia* Linn.: glabrous; stem erect, slender, somewhat branched at base; radical leaves reniform-cordate, crenate or cut; cauline ones linear, entire; panicle lax, few-flowered.

HAB. Rocky banks. N. S. N. to Subarc. Amer. W. to Rocky Mountains. June, July. 2f.—*Stem* 8—12 inches high. *Radical leaves* cordate, (withering early.) *Flowers* few, large, blue, in a loose terminal panicle or raceme. *Flax Bell-flower.*

2. *C. amplexicaulis* Mich.: stem simple, erect, angular; angles hispid backwards; leaves cordate, toothed, clasping; flowers sessile, 1—5 in the axil of each leaf.—*C. perfoliata* Linn.

HAB. Fields. Can. to Geor. W. to Miss. May—July. ☼.—*Stem* 8—12 inches high. *Leaves* sessile, closely embracing the stem, but never perfoliate. *Flowers* small, sessile, 1—4 in the axil of the leaf, purple. *Clasping Bell-flower.*

3. *C. americana* Linn.: stem simple, smooth; leaves ovate-lanceolate, much acuminate, membranaceous, uncinately serrate; lower ones somewhat cordate, with the petioles ciliate; flowers subsolitary, nearly sessile, in a terminal leafy raceme; corol subrotate; style exerted.—*C. acuminata* Mich.

HAB. Mountains and rocks. Niagara Falls and S. to Geor. July, Aug. 2f.—*Stem* 2—3 feet high. *Flowers* blue, flat, 1—2 in the axils of the leaves.

4. *C. aparinoides* Pursh: stem slender, much branched, acutely angled; angles with the margin and nerves of the leaves aculeate backwards; leaves linear-lanceolate, sessile, somewhat serrate, smooth

above; flowers solitary, on terminal filiform flexuous peduncles.—*C. erinoides* Muhl.—*C. flexuosa* Mich.?

HAB. Wet meadows. Can. to Geor. June, July. ☉.—Stem a foot high, weak. Flowers small, white. Prickly Bell-flower.

ORDER LXIX. LOBELIACEÆ. Lind.

Calyx superior, 5-lobed, or entire. *Corol* monopetalous, irregular, inserted into the calyx, 5-lobed, or 5-cleft. *Stamens* 5, inserted into the calyx alternately with the lobes of the corol; *anthers* cohering; *pollen* oval. *Ovary* inferior, with from 1 to 3-cells; *ovules* very numerous, attached either to the axis or the lining; *style* simple; *stigma* surrounded by a cup-like fringe. *Fruit* capsular, 1 or more celled, many seeded, dehiscing at the apex. *Seeds* attached either to the lining or the axis of the pericarp; *embryo* straight, in the axis of fleshy albumen; *radicle* pointing to the hilum.

Herbs or *shrubs*. *Leaves* alternate, without stipules. *Flowers* axillary or terminal.

1. LOBELIA. Linn.

Calyx 5-cleft. *Corol* monopetalous, irregular, cleft on the upper side nearly to its base. *Stamens* united into a tube. *Stigma* 2-lobed. *Capsule* inferior or semisuperior, 2 or 3-celled, opening at the summit. *Seeds* minute, scabrous.

Pentandria. Monogynia.

1. *L. dortmanna* Linn.: leaves linear, 2-celled, fleshy, obtuse; scape nearly naked; flowers in a terminal raceme, remote, pedicelled, nodding.—*L. paludosa* Nutt.

HAB. Ponds and swamps. Mass. to Geor. July. 2f.—Scape 18 inches high. Leaves growing in a single tuft about the root, obtuse, spreading and recurved. Flowers 3 or 4, very remote, pendulous, pedicelled, pale blue. Water Gladiol.

2. *L. kalmii* Linn.: whole plant smooth; stem erect, branched; leaves linear, remotely toothed; radicle ones spatulate; racemes terminal, lax, few-flowered, leafy; peduncles longer than the fruit, with 2 minute bracts near the flower; capsule tapering at base.

HAB. Fields. N. S. July, Aug. 2f.—Stem 12–20 inches high, slender. Flowers blue, on long peduncles.

3. *L. nuttallii* R. & S.: stem erect, minutely scabrous, simple, or with filiform branches; leaves oblong-linear, denticulate; flowers in slender racemes, distinct; peduncles coloured, shorter than the flower, with minute bracts near the base; capsule obtuse below.—*L. gracilis* Nutt.—*L. kalmii* Bart. Ell.

HAB. Margins of swamps. N. J. to Car. Aug. ♂.—*Stem* filiform, erect, 2 feet high, often flexuous. *Peduncles* 1-4 inch long. *Flowers* pale blue, smaller than in the preceding; segments of the calyx nearly double the length of the capsule.

4. *L. claytoniana* Mich. : stem erect, simple, pubescent; leaves oblong, pubescent, obtuse, nearly entire; radical ones spatulate; raceme virgate, naked; segments of the calyx subulate, nearly as long as the tube of the corol.—*L. claytoniana* and *L. pallida* Muhl.

HAB. Fields. Can. to Car. July, Aug. 2f.—*Stem* 1 1-2—2 feet high, generally simple. *Flowers* pale blue, as large as those of *L. kalmii*, from 6—30 in a raceme.—I follow Dr. Torrey in uniting *L. pallida* of Muhl. with this species. They are, however, considered distinct by Mr. Elliott.

5. *L. puberula* Mich. : covered with silky down; stem erect, simple, slightly angled; leaves oblong-oval, obtuse, repand-serrulate; flowers nearly sessile, in a 1-sided spike; segments of the calyx longer than the tube of the corol, ciliate; margins reflexed.

HAB. Mountains. Penn. to Geor. Sept. 2f.—*Stem* 2 feet high. *Lower leaves* obovate; upper lanceolate. *Flowers* large, in a secund-spike or raceme, nearly sessile, bright blue.—Allied to the next, but smaller in all its parts.

6. *L. syphilitica* Linn. : stem erect, somewhat hairy; leaves closely sessile, ovate-lanceolate, unequally serrate, with scattered hairs on the upper surface; raceme leafy, with the flowers on short pedicels; calyx hairy, with the margins reflexed.

HAB. Bogs, &c. Can. to Car. Sept. 2f.—*Stem* 2—3 feet high, simple, hairy on the margin. *Flowers* on short pedicels, in a long leafy raceme, large, blue.

7. *L. inflata* Linn. : stem erect, hairy, branched; leaves ovate-lanceolate, sessile, serrate, hairy; racemes leafy, somewhat paniculate; capsules inflated.

HAB. Fields and woods. Can. to Car. W. to Miss. Aug. ♂.—*Stem* a foot high. *Flowers* numerous, small, pale blue, in leafy spikes or racemes.—Plant acrid and powerfully medicinal. *Big. Med. Bot. i. 177.* *Indian Tobacco.*

8. *L. cardinalis* Linn. : stem erect, simple, smooth; leaves oblong-lanceolate, serrate; lower ones tapering at base; spike 1-sided, somewhat leafy, with the flowers on pubescent pedicels; stamens longer than the corol.

HAB. Low wet grounds. Can. to Car. July, Aug. 2f.—*Stem* 1 1-2—2 feet high. *Flowers* very large, bright scarlet, in a terminal raceme which is from 8—10 inches long.—One of the most splendid plants in the Northern Section. *Cardinal Flower.*

ORDER. LXX. ERICEÆ. Linn.

Calyx 4 or 5-cleft, nearly equal, inferior, persistent. *Corol* hypogynous, monopetalous, 4 or 5-cleft, occasionally separable into 4 or 5 pieces, regular or irregular. *Stamens* definite,

equal in number to the segments of the corol, or twice as many, hypogynous, or inserted into the base of the corol. *Anthers* 2-celled, the cells hard and dry. *Ovary* surrounded at the base by a disk or secreting scales, many-celled, many-seeded; *style* 1, straight; *stigma* 1, undivided or toothed. *Fruit* capsular, many-celled, with central placentæ. *Seeds* indefinite, minute; *embryo* cylindrical, in the axis of fleshy *albumen*; *radicle* opposite the hilum.

Shrubs or *undershrubs*. *Leaves* evergreen, rigid, entire, whorled or opposite, without stipules.

1. ARBUTUS. Linn.

Calyx minute, 5-parted. *Corol* ovate, diaphanous at the base; border small, 5-cleft, revolute. *Stamens* 10. *Berry* superior, 5-celled; *cells* 1, or many-seeded.

Decandria. Monogynia.

A. uva ursi Linn. : stem woody, procumbent; leaves petioled, cuneate-obovate, very entire, coriaceous; margin convex; flowers in a terminal clustered raceme; berries red, persistent, 5-seeded.—*Arctostaphylos uva ursi* Adans. Spreng.

HAB. On mountains. N. S. N. to Subarc. Amer. April, May.

℥.—A trailing evergreen. *Flowers* pale red. *Berries* scarlet.

—The leaves are astringent and medicinal. *Big. Med. Bot.* i. 66.

Bear-berry.

2. GAULTHERIA. Linn.

Calyx 5-cleft or 5-toothed, bibracteate at base. *Corol* ovate; border partly 5-cleft, revolute. *Stamens* 10, with the filaments hirsute. *Anthers* two-horned at the summit. *Capsule* superior, 5-celled, invested by the calyx which becomes a berry.

Decandria. Monogynia.

1. *G. procumbens* Linn. : stem procumbent, with the branches erect; leaves obovate, wedgeform at the base, ciliate-denticulate; flowers few, terminal, nodding.

HAB. Dry woods. N. S. May—July. 2℥.—*Stem* creeping; branches ascending, 4—6 inches high. *Leaves* evergreen and shining. *Flowers* axillary, white. *Fruit* having the appearance of a bright scarlet berry. *Spicy Wintergreen.*

2. *G. hispidula* Muhl. : stem filiform, creeping, hispid; leaves ovate, acute, with scattered hairs; flower solitary, axillary, subsessile, octandrous; corol small, bell-shaped.—*G. serpyllifolia* Pursh.—*Vaccinium hispidulum* Linn.—*Arbutus filiformis* Lam.—*Oxycoccus hispidulus* Pers.

HAB. Alpine swamps. N. S. April, May. ℥.—*Stems* creeping. *Leaves* evergreen, small, ovate or roundish oval. *Flowers*

solitary, on recurved peduncles. *Calyx* in 4 acute segments. *Corol* small, white, with as many segments as the calyx. *Berry* white. Taste of the leaves resembling that of *G. procumbens*.—There is some doubt with regard to the generic character of this plant. Dr. Torrey thinks it will constitute the type of a new genus.

3. ANDROMEDA. Linn.

Calyx 5-parted, minute, inferior. *Corol* ovate or subcylindrical, smooth; border 5-cleft, reflexed. *Stamens* 10. *Capsule* 5-celled, 5-valved; valves producing dissepiments from the middle; margins naked. *Decandria. Monogynia*.

* *Leaves evergreen*.

1. *A. hypnoides* Linn.: leaves imbricate, subulate, smooth; peduncles solitary, terminal, 1-flowered; corol nodding, globose-campanulate.

HAB. White Hills, N. H. and N. W. Coast. June. ♀.—Shrub creeping, resembling a moss; flowering branches erect. *Flowers* white, tinged with red.

2. *A. polyfolia* Linn.: leaves linear-lanceolate, convex, revolute, whitish-glaucous beneath; flowers in short terminal racemes.

HAB. Sphagnous swamps. N. S. N. to Arc. Amer. June. ♀.—Stem a foot high. *Leaves* varying from linear to oblong. *Flowers* white, tinged with red.

3. *A. calyculata* Linn.: leaves lanceolate-oblong, rather obtuse, obsoletely serrulate, subrevolute, ferruginous beneath; racemes terminal, leafy, subsecund; pedicels short, solitary, axillary; calyx bibracteate; corol oblong-cylindrical.

HAB. Swamps. Can. to Car. W. to Miss. April, May. ♀.—A shrub 3—4 feet high. *Leaves* coriaceous, covered with white dots above, pale beneath. *Flowers* white, in terminal leafy racemes.

** *Leaves deciduous*.

4. *A. mariana* Linn.: leaves oval, somewhat acute, very entire, smooth, subcoriaceous, paler beneath; flowering branches nearly naked; pedicels fasciculate; calyx leafy; corol ovate-cylindric; anthers simple at the summit.

HAB. Sandy soils. N. J. to Flor. June, July. ♀.—Shrub 2—3 feet high. *Flowers* white and pale red, large. *Anthers* with two minute awns at the base.

5. *A. racemosa* Mich.: leaves oval-lanceolate, acute, serrulate, membranaceous, smooth above, somewhat pubescent beneath; racemes terminal, secund, simple or branched; corol oblong-cylindrical, anthers 4-awned at the summit.—*A. paniculata* Walt.

HAB. Swamps and wet woods. Can. to Flor. June, July. $\frac{1}{2}$.
—*Shrub* 4—6 feet high. *Flowers* white, in racemes which are 3
or 4 inches long. *Corol* contracted at the mouth. *Anthers* cleft,
4-awned.

6. *A. arborea* Linn. : branches terete ; leaves oblong-oval, acuminate, sharply serrate, smooth ; panicles terminal, many-spiked ; corol ovate-oblong, pubescent ; anthers unawned, linear.

HAB. Mountains. Penn. to Flor. June, July. $\frac{1}{2}$.—A beautiful tree 40—50 feet high. *Leaves* large, shining above, paler beneath. *Flowers* white, in large terminal panicles consisting of numerous secund racemes or spikes. *Sorrel Tree*.

7. *A. ligustrina* Muhl. : pubescent ; leaves obovate-lanceolate, acuminate, minutely serrulate ; flower-bearing branches terminal, paniculate, naked ; corol nearly globose, pubescent ; anthers unawned.—*A. paniculata* Pursh.—*Vaccinium ligustrinum* Linn. not of Mich.—*Lyonia paniculata* Nutt.

HAB. Swamps, &c. N. Y. to Car. June, July. $\frac{1}{2}$.—*Shrub* 4—6 feet high. *Flowers* white, in compound nearly naked and erect panicles. *Corol* small, white, pubescent.

4. CLETHRA. Linn.

Calyx 5-parted, persistent. *Petals* 5. *Stamens* 10. *Style* persistent. *Stigma* short and trifid. *Capsule* 3-celled, 3-valved, enclosed by the calyx. *Decandria. Monogynia*.

C. alnifolia Linn. : leaves cuneate-obovate, acute, serrate, smooth, of the same colour on both sides ; racemes spiked, simple, bracteate, hoary tomentose.

HAB. Swamps. N. Y. to Car. July, Aug. $\frac{1}{2}$. *Shrub* 3—6 feet high. *Flowers* white, in long terminal racemes or spikes, with downy pedicels. *Sweet Pepper-bush*.

5. MENZIESIA. Smith.

Calyx deeply 5-cleft. *Corol* ovate, 4—5-cleft. *Stamens* 8—10, inserted into the receptacle. *Capsule* 4—5-celled, dissepiments produced by the inflected margins of the valves. *Seeds* numerous, oblong. *Octandria. Monogynia*.

1. *M. carulea* Sartz : stem branched, woody below ; leaves scattered, crowded, linear-toothed ; peduncles terminal, aggregate, 1-flowered ; flowers bell-shaped, 5-cleft, decandrous ; calyx very acute.—*Andromeda carulea* Linn.—*Erica carulea* Willd.

HAB. White Hills, N. H. N. W. Coast and Labrador. July. $\frac{1}{2}$.
—An evergreen *shrub* resembling a heath in its foliage and flowers. *Leaves* one third of an inch long. *Flowers* large, purple, on long red peduncles.

2. *M. globularis* Salisb. : leaves lanceolate, glaucous beneath, except the nerves, pubescent ; calyx 4-cleft ; flowers globose, octandrous.—*M. smithii* Mich.

HAB. Mountains. Penn. to Car. June. ♀.—*Shrub* 4 feet high. *Leaves* very hairy when young. *Flowers* yellowish-brown.

6. KALMIA. Linn.

Calyx 5-parted. *Corol* salver-form; border on the under side producing 10 cornute protuberances and as many cavities in which the anthers are concealed. *Capsule* 5-celled, many-seeded; dissepiments marginal.

Decandria. Monogynia.

1. *K. glauca* Ait.: branches ancipitous; leaves opposite, subsessile, oblong, smooth, glaucous beneath, revolute on the margin; corymbs terminal and axillary, bracteate; peduncles and calyx very smooth.

b. rosmarinifolia Pursh: leaves linear, conspicuously revolute, nearly green beneath.

HAB. Sphagnous swamps. N. S. N. to Arc. Amer. June, July. ♀.—*Shrub* 12—18 inches high, with opposite lanceolate leaves. *Flowers* pale rose coloured, in terminal corymbs or umbels. Var. *b.* is found in a swamp two miles east of this city.

Glaucous Kalmia.

2. *K. angustifolia* Linn.: leaves scattered or ternate, petiolate, oblong, obtuse, slightly ferruginous beneath; corymbs lateral-linear; peduncles and calyx glandular-pubescent.

HAB. Sandy woods. Can. to Car. June, July. ♀.—*Shrub* 12—18 inches high. *Leaves* entire, somewhat glaucous beneath. *Flowers* deep rose colour, in lateral corymbs, forming a kind of whorl around the stem. *Sheep-Laurel.*

3. *K. latifolia* Linn.: leaves on long petioles, scattered and ternate, oval, coriaceous, green on both sides; corymbs terminal, viscidly pubescent.

HAB. Hills and mountains. N. Y. to Car. June, July. ♀.—*Shrub* 4—10 feet high, with large leaves and flowers, which are arranged in terminal corymbs. *Corol* rose coloured. Medicinal. *Big. Med. Bot. i. 133. Mountain Laurel. Calico Bush.*

7. EPIGÆA. Linn.

Calyx large, 5-parted, with 3 bracts at the base. *Corol* salver-form; border 5-parted, spreading; tube villous within. *Stamens* 10. *Capsule* 5-celled. *Receptacle* 5-parted.

Decandria. Monogynia.

E. repens Linn.: branches, nerves of the leaves and petioles very hairy; leaves on long petioles, cordate-ovate, very entire; corol sub-cylindrical.

HAB. Side hills, roots of pines. Can. and N. S. April. ♀.—A small trailing and creeping evergreen. *Flowers* white, tinged with red, very fragrant. *Ground Laurel.*

8. RHODORA. Linn.

Calyx 5-toothed. *Corol* 3-petalled; petals unequal, slightly united at the base; the upper one thrice broader and 3-lobed, (or corol bilabiate; upper lip 2—3-cleft; lower one 2-toothed.) *Stamens* and *style* declinate. *Capsule* 5-celled, 5-valved, opening at the top; dissepiments formed of the inflexed margins of the valves. *Decandria. Monogynia.*

R. canadensis Linn.

HAB. Mountain bogs. Can. and N. S. May. ♀.—*Shrub* 2 feet high. *Leaves* alternate, oval, very entire, pubescent and glaucous beneath. *Flowers* purple, in terminal clusters or umbels, appearing before the leaves.

9. RHODODENDRON. Linn.

Calyx 5-parted. *Corol* somewhat funnel-form, 5-cleft. *Stamens* 5—10, declinate; *anthers* opening by 2 terminal pores. *Capsule* 5-celled, 5-valved, opening at the summit.

Decandria. Monogynia.

Obs. It was suggested by Pursh, that all the species of *Azalea* which he described, except *A. procumbens*, should be united with *Rhododendron*. This view has been adopted by Mr. Don and Dr. Torrey. These genera do not appear to differ at all, except in the number of stamens, which even in the true *Azalea* is liable to great variations.—See Don's remarks on *Azalea*, *Rhododendron*, *Ledum* and *Leucophyllum* in *Edin. Phil. Jour.* vi. 47.

* *Stamens* 5—10.

1. *R. lapponicum* Wahl. : leaves elliptical, roughened with excavated punctures; flowers in terminal leafy clusters, campanulate; stamens mostly 8.—*Azalea lapponica* Linn.

HAB. White Hills, N. H. Big. N. to Arc. Amer. July. ♀.—*Shrub* 8—10 inches high, with coriaceous evergreen leaves. *Flowers* deep purple, in terminal clusters or umbels.

2. *R. maximum* Linn. : arborescent; leaves oblong, acute, paler beneath; umbels terminal; segments of the calyx oval, obtuse; corol campanulate.

HAB. Swamps and bogs. N. Y. to Car. June, July. ♀.—*Shrub* 10—15 feet high. *Leaves* large, coriaceous. *Flowers* rose coloured, in a large compact cone-like raceme, covered when young with large acuminate ferruginous bracts.—Several varieties occur in various parts of the U. S. Medicinal. Big. Med. Bot. iii. 101. *American Rose Bay.*

** *Stamens* 5.

3. *R. nudiflorum* Torr. : flowers rather naked; leaves lanceolate-oblong, nearly smooth and green on both sides; the midrib beneath brist-

ly ; margin ciliate ; flowers not viscous ; tube longer than the divisions ; teeth of the calyx short, somewhat rounded ; stamens much exserted.

—*Azalea nudiflora* Linn.—*A. perichlymenoides* Mich.

HAB. Woods. Can. to Geor. April, May. ♀.—*Shrub* 2—6 feet high. *Flowers* reddish, in terminal clustered racemes, appearing before the leaves.—Of this species there are a number of varieties. Among others mentioned by Pursh, is one which has from 10—20 stamens. *Upright Honeysuckle. Pinxter Blom.*

4. *R. viscosum* Torr. : flowers leafy ; branches hispid ; leaves oblong-ovate, acute, smooth and green on both sides, ciliate on the margin ; midrib bristly ; flowers glutinous, hairy ; tube as long again as the segments ; teeth of the calyx short, rounded ; stamens scarcely longer than the corol.—*Azalea viscosa* Linn. and *A. glauca* Pursh.

HAB. Woods. Can. to Geor. June. ♀.—*Shrub* 6—8 feet high. *Flowers* white, in terminal clusters, sweet scented. *Corol* viscous and pubescent. *A. glauca* of Pursh appears to be only a variety, with the leaves glaucous beneath.

5. *R. calendulaceum* Torr. : flowers rather naked ; leaves oblong, pubescent on both sides, at length hirsute ; flowers large, not viscous ; teeth of the calyx oblong ; tube of the corol hairy, shorter than the segments.—*Azalea calendulacea* Mich.—*A. nudiflora* var. *coccinea* Ait.

HAB. Penn. to Car. May. ♀.—*Shrub* 2—6 feet high. *Flowers* yellow or flame colour.—Said to be the handsomest shrub in N. America.

6. *R. arborescens* Torr. : flowers leafy ; leaves obovate ; somewhat obtuse, smooth on both sides, glaucous beneath, ciliate on the margin ; nerve almost smooth ; flowers not viscous ; tube longer than the segments ; calyx leafy, with the segments oblong, acute ; filaments exserted.—*Azalea arborescens* Pursh.

HAB. Blue Mountains, Penn. May—July. ♀. *Pursh.*—*Shrub* 10—20 feet high. *Flowers* large, reddish ; scales of the flower-buds large, yellowish-brown, surrounded with a fringed white border. *Pursh.*

7. *R. nitidum* Torr. : flowers leafy ; branches somewhat smooth ; leaves oblanceolate, submucronate, coriaceous, smooth on both sides, shining above ; nerve bristly beneath ; margins revolute-ciliate ; flowers viscous ; tube a little longer than the segments ; calyx very short.—*Azalea nitida* Pursh.

HAB. Mountain swamps. N. Y. to Vir. June, July. ♀.—*Leaves* dark green and shining, smaller than in any other species. *Flowers* white, with a reddish tinge. *Pursh.*

8. *R. hispidum* Torr. : flowers leafy ; branches straight, very hispid ; leaves long-lanceolate, hispid above, smooth beneath, glaucous on both sides ; nerve bristly beneath ; margin ciliate ; flowers very viscous ; tube scarcely longer than the segments ; teeth of the calyx oblong, rounded ; filaments exserted.—*Azalea hispida* Pursh.

HAB. Margins of lakes. Blue Mountains, Penn. July, Aug. ♀.—*Shrub* 10—15 feet high. *Flowers* white, with a red border.

Stamens often 10.—This shrub is said by Pursh to have a blueish appearance, by which it may be distinguished from all others at a great distance.

10. AZALEA. Linn. Don.

Calyx 5-parted. *Corol* short, campanulate, 5-cleft. *Stamens* 5, equal, shorter than the corol; *anthers* opening longitudinally. *Style* straight, included. *Capsule* 5-celled, 5-valved, opening at the top. *Pentandria. Monogynia.*

A. procumbens Linn. : stems diffusely procumbent; leaves opposite, elliptical, glabrous, revolute on the margin, included.—*Loiseleuria procumbens* R. & S.

HAB. High mountains. N. S. N. to Arc. Amer. July. ♀.
—*Shrub* 3—4 inches long, branched, leafless below. *Flowers* small, reddish, in small terminal umbels or corymbs.

11. LEDUM. Linn.

Calyx minute, 4-toothed. *Corol* 5-petalled, spreading. *Stamens* 5—10, exserted; *anthers* opening by two terminal pores. *Capsule* subovate, 5-celled, 5-valved, opening at the base, pedicellate. *Seeds* numerous, flat, linear, scabrous, with a membranaceous wing at each extremity.

Decandria. Monogynia.

1. *L. latifolium* Ait. : leaves oblong, replicate on the margin, ferruginous tomentose beneath; *stamens* 5, as long as the corol.—*L. palustre* var. *latifolium* Mich.

HAB. Sphagnous swamps. N. S. N. to Arc. Amer. June. ♀.
—An evergreen *shrub*, with the stem irregularly branched; the branches woolly. *Leaves* alternate, broad-oblong, obtuse. *Flowers* large, in terminal corymbs, white. *Labrador Tea.*

2. *L. palustre* Linn. : leaves linear, revolute on the margin, ferruginous tomentose beneath; *stamens* 10, longer than the corol.

HAB. Swamps. N. S. N. to Arc. Amer. June. 2♀.—A *shrub* smaller than the last and with narrower leaves.—I have found both species in a sphagnous swamp near Fairhaven, Vt.

ORDER LXXI. VACCINÆÆ. De Cand. Lind.

Calyx superior, entire, or with from 4 to 6 lobes. *Corol* monopetalous, lobed as often as the calyx. *Stamens* distinct, double the number of the lobes of the corol, inserted into an epigynous disk; *anthers* with 2 horns and 2 cells. *Ovary* inferior, 4 or 5-celled, many-seeded; *style* simple; *stigma* simple. *Berry* crowned by the persistent limb of the calyx, succulent, 4 or 5-celled, many-seeded. *Seeds* minute; em-

bryo straight, in the axis of a fleshy albumen; *cotyledons* very short; *radicle* long, inferior.

Shrubs, with alternate coriaceous leaves.

1. VACCINIUM. Linn.

Calyx adherent, 4—5-toothed. *Corol* urceolate or campanulate, 4—5-cleft. *Stamens* 8—10. *Filaments* inserted on the germ. *Berry* globose, 4—5-celled, many-seeded.

Decandria. Monogynia.

* *Leaves deciduous.*

† *Corol campanulate.*

1. *V. stamineum* Linn.: much branched; the younger branches pubescent; leaves oval, acute, very entire, glaucous beneath; pedicels solitary, axillary, filiform, nodding; corol campanulate, spreading; segments oblong, acute; anthers exserted, awned, somewhat pyriform.—*V. stamineum* and *V. album* Pursh.

HAB. Dry woods. Can. to Flor. May, June. ♀.—*Shrub* 2—3 feet high. *Flowers* white, on the lateral branches of the stem, which appear like leafy racemes. *Berries* large, greenish-white.

Deer-berry.

2. *V. dumosum* Curt.: younger branches, leaves and racemes sprinkled with resinous dots; leaves obovate, wedgeform at the base, mucronate, entire, (or finely serrulate,) green on both sides; racemes bracteate; pedicels short, axillary, subsolitary; corol campanulate; segments rounded; anthers included.—*V. frondosum* Mich.

HAB. Pine woods. N. J. to Flor. June. ♀.—*Shrub* 12—18 inches high. *Flowers* large, white, nodding, in leafy racemes. *Berries* large, globular, black and shining.

3. *V. frondosum* Linn.: leaves obovate-oblong, obtuse, very entire, sprinkled with resinous dots, glaucous beneath; racemes lateral, few-flowered, loose, bracteate; pedicels long, filiform; corol ovate-campanulate; anthers included.—*V. glaucum* Mich.

HAB. Sandy woods. Can. to Car. June. ♀.—*Shrub* 3—5 feet high. *Raceme* lateral, few-flowered. *Flowers* small, white. *Berries* large, bluish, sweet, ripening later than the other species.

Whortle-berry. Blue-tangles.

†† *Corol urceolate.*

a. *Flowers racemose or fasciculate.*

4. *V. resinum* Ait.: leaves petiolate, oblong-oval, mostly obtuse, very entire, sprinkled with resinous dots beneath; racemes lateral, secund, bracteate; corol ovate, conic, pentangular, contracted at the mouth.

HAB. Woods and hills. Can. to Car. May, June. ♀.—*Shrub* 2—4 feet high. *Flowers* reddish-green, in short lateral racemes or fascicles. *Berries* globular, black, sweet. *Black Whortle-berry.*

5. *V. corymbosum* Linn.: flower bearing branches almost leafless; leaves oblong-oval, acute at each extremity, nearly entire; the young ones pubescent; racemes short, sessile, bracteate; corol cylindrical-ovate—and *V. fuscatum* Ait. and *V. amenum* Pursh.—*V. disomorphum* Mich.

HAB. Swamps and wet woods. Can. to Virg. June. ♀.—
Shrub 4—8 feet high, with a few straggling branches. Flowers purplish-white, in racemes which are crowded near the summit of the naked branches. Berries large, black, subacid.

High Whortle-berry.

6. *V. pennsylvanicum* Lam.: branches angular, (green;) leaves sessile, ovate-lanceolate, mucronate, serrulate, shining on both surfaces; fascicles of flowers, subterminal; corol ovate.—*V. virgatum* Ait. ?—*V. tenellum* Pursh.

HAB. Dry hills. N. Y. to Geor. May, June. ♀.—Shrub 12—18 inches high, much branched. Flowers pale red, 6—8 in a fascicle. Calyx green. Berries large, blue and somewhat glaucous.

Low Blue-berry.

7. *V. tenellum* Ait.: racemes bracteate, sessile; corol ovate cylindrical; leaves oblong-elliptic, subcuneiform, serrulate, nearly smooth.

HAB. N. J. and Penn. April. ♀.—Muhl.

8. *V. ligustrinum* Mich.: branches angular and erect; leaves subsessile, erect, lanceolate, mucronate, serrulate; fascicles gemmaceous, sessile; flowers nearly sessile; corol oblong-ovate.

HAB. Dry woods. Penn. and Virg. May, June. ♀.—A small shrub with straight and slender branches. Flowers purplish-red. Berries black.—It is said to vary very much in the shape and size of its leaves.

b. Flowers solitary.

9. *V. uliginosum* Linn.: procumbent; branches rigid; leaves obovate, very obtuse, entire, smooth above, veined and glaucous beneath; flowers subsolitary, octandrous; corol short, ovate, 4-cleft; anthers awned at the base.—*V. uliginosum* var. *alpinum* Big.

HAB. White Hills, N. H. N. to Arc. Amer. April, May. ♀.—A low procumbent shrub. Flowers single or in pairs, nearly sessile. Berries oblong, deep blue, crowned with the style.

**Leaves evergreen.

10. *V. vitis-idea* Linn.: stem creeping; branches erect; leaves obovate, evergreen, dotted beneath, subentire and revolute at the margin; flowers in terminal drooping racemes; corol oblong, campanulate.

HAB. High mountains. N. S. N. to Arc. Amer. May, June. ♀.—A low shrub, with a creeping stem and angular branches. Leaves small, coriaceous. Flowers few, in a raceme, pale red. Corol mostly 4-cleft, with 4 stamens. Berries red, acid.

Cow-berry.

2. OXYCOCCUS. Pers.

Calyx superior, 4-cleft. *Corol* 4-parted, with the segments somewhat linear and revolute. *Stamens* 8. *Filaments* connivent; *anthers* tubular, 2-parted. *Berry* many-seeded.

Octandria. Monogynia.

1. *O. macrocarpus* Pursh: stem prostrate, filiform, creeping; leaves oblong, nearly flat, obtuse, with distant obsolete serratures, glaucous beneath; pedicels elongated, 1-flowered; segments of the corol linear-lanceolate.—*O. vulgaris* var. *macrocarpus* Pers.—*Vaccinium oxycoccus* var. *oblongifolius* Mich.

HAB. Sphagnous swamps. Can. and N. S. June. ♀.—Shrub creeping and throwing up short erect branches. *Leaves* alternate, small. *Flowers* white or pale red, on slender axillary pedicels. *Berry* large, bright scarlet. Common Cranberry.

2. *O. palustris* Pers.: stem filiform, creeping; leaves ovate, evergreen, entire, with revolute margins; peduncles 1-flowered, terminal; corol 4-parted; segments ovate.—*O. vulgaris* Pursh.—*Vaccinium oxycoccus* Linn.

HAB. Alpine bogs. Can. and N. S. June. ♀.—A small evergreen creeping plant. *Flowers* red. *Berries* bright purple, smaller than the former.

ORDER LXXII. PYROLACEÆ. Lind.

Calyx 5-parted, persistent, inferior. *Corol* monopetalous, hypogynous, regular, deciduous, 4 or 5-toothed, with an imbricated æstivation. *Stamens* hypogynous, twice as numerous as the divisions of the corol; *anthers* 2-celled, opening longitudinally, and furnished with appendages at the base. *Ovary* superior, 4 or 5-celled, many-seeded, with a hypogynous disk; *style* 1, straight or declinate; *stigma* simple. *Fruit* capsular, 4 or 5-celled, dehiscent, with central placenta. *Seeds* indefinite, minute, winged; *embryo* minute, inserted at the extremity of a fleshy albumen.

Herbs, rarely *undershrubs*, sometimes parasitical and leafless. *Leaves* either wanting or simple. *Flowers* solitary, or in terminal racemes.

1. PYROLA. Linn.

Calyx minute, 5-cleft or 5-parted. *Petals* 5. *Stamens* 10, slightly united at base. *Anthers* opening by 2 pores at base. *Stigma* 5-lobed. *Capsule* 5-celled. *Placenta* lunate. *Seeds* invested with a long aril. *Decandria. Monogynia.*

Obs. In the arrangement and description of our species of *Pyrola*, I have mainly adopted the views expressed by Mr. Don in his valuable monograph of this genus.—*Wernerian Transactions*, v. 220.

* *Valves of the capsules with their margins connected by an intricate fine tomentum, dehiscent at the base. Leaves alternate. Flowers in racemes.*

† *Stamens ascending. Style declinate, longer than the petals. Stigma annulate.*

1. *P. rotundifolia* Linn.: leaves roundish, very entire or crenulate, coriaceous, shorter than the dilated petiole; scape triquetrous; segments of the calyx lanceolate, acute; stigma clavate, obtusely 5-toothed.

HAB. Woods. Can. to Car. July. 2l.—*Leaves* all radical, evergreen, sometimes scarcely half the length of the petioles. *Scape* a foot or more high. *Flowers* cernuous, white, in an erect elongated raceme, emitting a fragrant smell.—The largest of the whole genus. *Round-leaved Wintergreen.*

2. *P. asarifolia* Mich.: leaves reniform, coriaceous, repandly crenate, half as long as the dilated petiole; scape acutely triquetrous; raceme many-flowered; segments of the calyx ovate, acuminate, appressed; stigma clavate, with the disk elongated and 5-lobed.

HAB. Dry woods. Can. and N. S. 2l.—Mr. Don considers this to be entirely distinct from the next, with which it is confounded by Mr. Nuttall.—“The *leaves*,” he observes, “appear to be subject to some slight variations; but in the true state they are of a reniform shape, nearly about the size and form of those of *Asarum europæum*: this remarkable character, if constant, would alone have been sufficient to distinguish it from every other species. The plant itself, is about the size of *P. rotundifolia*, which it greatly resembles in the figure and disposition of its flowers, which are of a greenish-white colour.”

3. *P. chlorantha* Swartz: leaves orbicular, retuse, obsoletely crenulate, half as long as the narrow petiole; raceme few-flowered; segments of the calyx very short, obtuse; petals oblong; pores of the anthers tubular; stigma clavate, with the disk elongated and 5-lobed.—*P. rotundifolia* var. *nummularia* Muhl. Cat.

HAB. Woods. Can. and N. S. 2l.

4. *P. elliptica* Nutt.: leaves elliptic or ovate, membranaceous, serrulate, longer than the dilated petiole; raceme few-flowered; bracts lanceolate-subulate, recurved at the summit; segments of the calyx very short, with recurved points; petals oval; stigma clavate, with the disk elongated and 5-lobed.

HAB. Dry woods. Can. and N. S. July, Aug. 2l.—*Leaves* membranaceous, finely serrate, oblong-oval, sometimes ovate, with an attenuated base, much longer than the petiole. *Raceme* few-flowered. *Flowers* white, odorous.—Allied to *P. rotundifolia*, but is smaller.

†† *Stamens erect. Style straight. Stigma not annulate.*

5. *P. minor* Linn.: leaves roundish or oval, coriaceous, repandly-

crenate, longer than the dilated petiole; racemes spiked, with bracts much longer than the pedicels; segments of the calyx very short; style included; stigma nearly flat, 5-lobed.

HAB. N. Y. and Penn. *Pursh & Muhl.* N. to Arc. Amer. June. 2f.—Resembles *P. media*, from which, however, it is distinguished by its straight style, equal to the length of the stamens, and shorter than the petals; by its spiked and closer raceme, by the pedicels being shorter than the bracts, and the petioles shorter than the leaves, &c. Don credits this species only to Northern Europe and Asia, and Sprengel unites the *P. minor* of Pursh with *P. chlorantha* of Swartz.—But it cannot be mistaken for the latter species.

6. *P. secunda* Linn.: leaves ovate, acute, membranaceous, sharply serrate, longer than the narrow petiole; raceme secund; segments of the calyx rounded; petals oblong; style exserted; stigma nearly flat, 5-lobed.

HAB. Sandy woods. Can. and N. S. h.—Stem 2—3 inches high. Flowers greenish-white, in a one-sided raceme.

** Valves of the capsules with their margins unconnected by tomentum, opening from the top. Leaves in threes or verticillate. Flowers solitary, in corymbs or umbels.

7. *P. uniflora* Linn.: flower solitary; leaves orbicular, serrate; pores of the anthers elongated-tubular; stigma acute; style straight, 5-toothed.

HAB. Can. and N. S. rare. July. 2f.—A small and very delicate species. Flower terminal, large, white, fragrant, nodding.

8. *P. umbellata* Linn.: leaves cuneate-lanceolate, serrate, in fours or sixes; peduncle pubescent, corymbed; bracts linear-subulate; appendages of the filaments ciliate; style immersed in the germ.—*Chimaphila corymbosa* Pursh.

HAB. Woods. Can. and N. S. July. 2f.—Root woody and creeping. Stem ascending, somewhat woody. Leaves evergreen, smooth and coriaceous, lower surface somewhat paler. Scape or peduncle 4—6 inches high. Flowers large, greenish-white tinged with purple, in a terminal corymb or imperfect umbel, on nodding pedicels.—It is known by the Indians by the name of *Pipsissawa* or *Sipsisewa*. Medicinal. See *Big. Med. Bot.* ii. 15.

9. *P. maculata* Linn.: leaves lanceolate, acuminate, incisely serrate, discoloured, opposite or in threes; peduncles pubescent, corymbed; bracts linear; appendages of the filaments woolly; style very short.—*Chimaphila maculata* Pursh.

HAB. Sandy woods. Can. to Car. July. 2f.—This species may be distinguished by its variegated leaves. Stem 3—4 inches high. Flowers large, reddish-white, nodding, fragrant, 2 or 3 in a corymb or umbel.
Spotted Wintergreen.

2. MONOTROPA. Linn.

Calyx 4—5-parted, or none. Corol 5-petalled, cucullate

at base. *Anthers* 2-celled, with two obtuse horns at their base. (*Don.*) *Capsule* 5-celled, 5-valved. *Seeds* numerous, surrounded by a membrane. *Decandria. Monogynia.*

* *Scape many-flowered.* *HYPOPITHYS. Nutt.*

1. *M. lanuginosa Mich.* : scape bearing the flowers in a spike ; bracts and flowers woolly.—*Hypopithys lanuginosa Nutt.*

HAB. Roots of trees. Can. to Car. Aug. 24.—*Scape* 4—6 inches long. *Leaves* merely scales, lanceolate, obtuse, crowded at base and a little hairy. *Flowers* white, in a terminal spike, on short peduncles.—Whole plant of a clear white, turning black by decay or by drying. *Tobacco-pipe.*

2. *M. hypopithys Linn.* : scape bearing the flowers in a spike ; scales and flowers smooth externally ; lateral flowers with 8 stamens.—*Hypopithys europea Nutt.*

HAB. Roots of trees. Can. Penn. and N. Car. June, July. 24.—The whole plant is of a brownish-yellow colour. There is still some doubt whether this is a plant of the Northern States ; what has been called by that name here being merely a smooth variety of the preceding. According to Sprengel, the *Monotropis odorata* of Elliott is identical with this species.

** *Scape 1-flowered.* *MONOTROPA. Nutt.*

3. *M. uniflora Linn.* : scape straight, elongated, 1-flowered ; flowers with 10 stamens, erect, or cernuous.

HAB. Shady woods. June. 24.—*Scape* 5—8 inches. *Flowers* large, mostly nodding, but sometimes erect. Whole plant white.

3. PTEROSPORA. Nutt.

Calyx 5-parted. *Corol* monopetalous, ovate ; margin 5-toothed, reflexed. *Anthers* excentrically peltate, 2-celled, adnate to the filaments by the margin, bisetose. *Capsule* 5-celled, imperfectly 5-valved ; dissepiments from the middle of the valves ; septa and valves uniting towards the base, and coalescing with the receptacular axis ; receptacle 5-lobed. *Seeds* very numerous and minute, each furnished with a terminal wing. *Decandria. Monogynia.*

P. andromeda Nutt.

HAB. Clay soils. Can. Banks of the Seneca Lake. Gray ; and near Albany, N. Y. July. 24.—*Plant* covered with brownish viscid hairs. *Stem* 1 1-2—2 feet high, simple, brownish-red or purple, clothed at base with lanceolate bracts. *Flowers* very numerous, irregularly disposed in a long terminal raceme, red and white. *Peduncles* filiform, nodding, longer than the flowers.

SUBCLASS III. COROLLIFLORÆ.

Petals united in the form of a hypogynous corol, which is not attached to the calyx. *Stamens* inserted into the corol.

ORDER LXXIII. EBENACEÆ. *Vent. Lind.*

Flowers polygamous or dioecious, rarely perfect. *Calyx* 3—6-divided, nearly equal, persistent. *Corol* monopetalous, regular, deciduous, somewhat coriaceous, 3—6-divided; æstivation imbricated. *Stamens* inserted on the corol, or hypogynous, definite; *filaments* usually in two rows; *anthers* erect, linear-lanceolate, 2-celled, bursting longitudinally. *Ovary* free, sessile, many-celled; *ovules* 1 or 2 in each cell, pendulous; *style* divided, rarely simple; *stigmas* simple or bifid. *Fruit* fleshy, round or oval, the pericarp sometimes opening regularly. *Seeds* few, with a membranous coat; *embryo* straight; *albumen* cartilaginous; *radicle* next the hilum; *cotyledons* foliaceous.

Trees or *shrubs*, without milky juice. *Leaves* coriaceous, alternate, without stipules.

1. DIOSPYROS. *Linn.*

Dioecious. *Calyx* 4—6-cleft. *Corol* urceolate, 4—6-cleft. STERILE FL. *Stamens* 8—16, often producing 2 anthers. FERTILE FL. *Style* 1. *Stigmas* 4—5. *Berry* 8—12-celled. *Dioecia. Octandria.*

D. virginiana *Linn.*: leaves ovate-oblong, acuminate, reticulately veined, nearly smooth; petioles pubescent; buds smooth.

HAB. Woods. Penn. to Geor. and throughout the Western States. May. ♀.—A small tree, seldom more than 30—40 feet high. *Leaves* alternate. *Flowers* solitary, axillary, on short peduncles, greenish-yellow. *Fruit* as large as a common plum, golden-yellow, well flavored when fully ripe, but very astringent before that time. *Persimmon.*

ORDER LXXIV. ILICINEÆ. *Lind.*

Sepals 4—6; æstivation imbricated. *Corol* monopetalous, 4—5-parted, hypogynous; æstivation imbricated. *Stamens* inserted into the corol, alternate with its segments; *filaments* erect; *anthers* adnate. *Disk* none. *Ovary* fleshy, superior, somewhat truncate, 2—6-celled; *ovules* solitary, pendulous from a cup-shaped funiculus; *stigma* subsessile, lobed. *Fruit* fleshy, indehiscent, with from 2 to 6 stones. *Seed* suspended, nearly sessile; *albumen* large, fleshy; *embryo* small, 2-lobed, lying next the hilum, with minute *cotyledons* and a superior *radicle*.

Trees or shrubs. Leaves alternate or opposite, coriaceous.

1. ILEX. Linn.

Calyx 4—5-toothed, persistent. *Corol* 4—5-parted. *Stamens* 4—5, alternating with the petals. *Ovary* sessile, 4-celled. *Stigmas* subsessile, 4—5, sometimes distinct, sometimes united. *Berry* 4—5-seeded.

Tetrandria. Tetragynia.

I. opaca Ait. : leaves ovate, flat, coriaceous, acute, smooth, their margins with sharp spines ; flowers scattered at the base of the younger branches ; teeth of the calyx acute.—*I. aquifolium* Walt.

HAB. Sandy woods. Can. to Car. W. to Arkansas. June ♀.
—An evergreen tree 10—15 feet high. *Leaves* tough, smooth and shining, with rigid spines at the edges. *Flowers* growing in bunches around the branches, small, white.—It is stated by the younger Michaux, that birdlime may be extracted from the bark. The wood is fine grained and compact, and is employed by cabinet makers and turners. *American Holly.*

2. NEMOPANTHES. Raf.

Flowers by abortion dioecious or polygamous. *Calyx* small, scarcely conspicuous. *Petals* 5, distinct, oblong-linear, deciduous. *Stamens* 5, alternating with the petals. *Ovary* hemispheric. *Style* none. *Stigmas* 3—4, sessile. *Berry* subglobose, 3—4-celled, 3—4-seeded.

Pentandria. Tetragynia.

N. canadensis De Cand. : leaves deciduous, ovate-oblong, very entire, smooth, mucronate ; peduncles subsolitary (or fasciculate) very long, 1-flowered ; fruit obtusely quadrangular.—*N. fascicularis* Raf.—*Ilex canadensis* Mich.

HAB. Mountains. Can. to Car. May, June. ♀.—A shrub 3—6 feet high. *Leaves* smooth, oval, entire or slightly toothed. *Flowers* small, green, on long slender peduncles. *Berries* deep red. *Canadian Holly.*

3. PRINOS. Linn.

Characters same as *Ilex*, but the flowers are often by abortion dioecious or polygamous, 6-cleft, 6-stamened, and the berry 6-seeded.

Hexandria. Monogynia.

1. *P. verticillatus* Linn. : stem much branched ; leaves deciduous, oval, serrate, acuminate, pubescent beneath ; flowers dioecious, 6-cleft ; sterile ones axillary, subumbellate ; fertile ones aggregated ; berries globose.—*P. gronovii* Mich.

b. dubius De Cand. : flowers 4—5-cleft.—*P. ambiguus* Pursh.—*P. verticillatus* var. *tenuifolius* Torr. ?

HAB. Swamps. Can. to Car. June, July. ♀.—*Shrub* 6—8 feet high. *Flowers* small, white. *Berries* bright scarlet.

Winter Berry.

2. *P. ambiguus* Mich.: leaves deciduous, oval, entire, acuminate at each end; flowers 4-cleft; sterile ones crowded on the lower branchlets; fertile ones solitary, on long peduncles.

HAB. Wet woods. Penn. to Geor. ? July. ♀.—A small tree, with whitish bark. *Leaves* 1 1-2 inch long, and 1 inch wide, petiolate.

3. *P. lævigatus* Pursh: leaves deciduous, lanceolate, with appressed serratures, smooth on both sides, shining above; nerves beneath scarcely pubescent; flowers 6-cleft; fertile ones axillary, subsessile; sterile scattered, pedunculate.

HAB. In swamps. N. S. W. to Miss. July. ♀.—A *shrub* 6—8 feet high. *Leaves* 2 1-2 inches long. *Berries* large, red.

4. *P. glaber* Linn.: leaves evergreen, wedge-form, lanceolate, coriaceous, smooth and shining, somewhat toothed at the extremity; pedicels axillary, subsolitary, mostly 3-flowered.

HAB. Swamps. N. Y. to Car. July. ♀.—*Shrub* 3—4 feet high. *Flowers* white. *Berries* globose, black and shining. *Ink Berry.*

ORDER LXXV. OLEACEÆ. Lind.

Flowers monoclinal, sometimes dioecious. *Calyx* monophyllous, divided, persistent. *Corol* hypogynous, monopetalous, 4-cleft, sometimes of 4 petals, connected in pairs by the intervention of the filaments, rarely wanting; æstivation somewhat valvate. *Stamens* 2, alternate with the segments of the corol; *anthers* 2-celled, bursting longitudinally. *Ovary* free, 2-celled; *ovules* in pairs, collateral, pendulous; *style* 1, or none; *stigma* entire or bifid. *Fruit* drupaceous, baccate or capsular. *Seeds* often by abortion solitary; *albumen* dense, fleshy, abundant; *embryo* straight, about half the length of the albumen; *radicle* superior; *cotyledons* foliaceous.

Trees or *shrubs*. *Leaves* opposite, simple, sometimes pinatifid.

1. LIGUSTRUM. Linn.

Calyx minute, 4-toothed. *Corol* with the tube short; the limb 4-cleft, spreading. *Stamens* 2. *Berry* 1-celled, 2—4-seeded. *Diandria. Monogynia.*

L. vulgare Linn.: leaves elliptical-lanceolate, somewhat acute, smooth; panicle terminal, compact.

HAB. Woods. N. Y. to Virg. W. to Miss. May, June. ♀.
 —Shrub 4—6 feet high. Leaves dark green, opposite, entire,
 with a small point. Flowers white, in dense terminal panicles.
 Berries purplish-black. Privet or Prim.

2. CHIONANTHUS. Linn.

Calyx 4-parted. *Corol* deeply 4-parted ; segments long
 and linear. *Stamens* 2 ; *anthers* nearly sessile, on the tube.
Drupe 1-seeded. *Nut* striate. *Diandria. Monogynia.*

C. virginica Linn. : panicle terminal ; peduncles 3-flowered ; leaves
 acute.

a. montana Pursh : leaves oval-lanceolate, coriaceous, smooth ;
 panicles dense ; drupe oval.

b. maritima Pursh : leaves obovate-lanceolate, membranaceous, pu-
 bescent ; panicles very loose ; drupe elliptical.

HAB. *a.* on mountains ; *b.* on the sea coast. Penn. to Car. May,
 June. ♀.—A small tree, 6—10 feet high, with opposite branch-
 es. Flowers white, in pendulous panicles. *Drupe* purple. The
corol is sometimes 5 or 6-cleft. Fringe Tree.

3. FRAXINUS. Linn.

Calyx none, or 3—4-cleft. *Corol* none or deeply 4-parted,
Stamens 2. *Capsule* 2-celled, 2-seeded, compressed and foli-
 aceous at the extremity. *Seed* solitary, pendulous.—Polyga-
 mous. *Dioecia. Diandria.*

* *Flowers* naked, never perfect. *Anthers* sessile.

1. *F. sambucifolia* Willd. : leaves pinnate ; leaflets sessile, ovate-
 lanceolate, rugose and shining, rounded and unequal at base ; axils of
 the veins villous beneath ; flowers naked.

HAB. River banks. Can. and N. S. April. ♀.—A large tree,
 with the buds deep blue ; young shoots dotted, green. Leaflets
 in 5 pairs. Black Ash. Water Ash.

** *Flowers* calyculate, apetalous.

2. *F. acuminata* Lam. : leaves pinnate ; leaflets petiolate, oblong,
 shining, acuminate, very entire or slightly toothed, glaucous beneath ;
 flowers calyculate.—*F. americana* Willd.—*F. concolor* Mich. f.

HAB. Woods. Can. to Car. May. ♀.—A large tree 50—60
 feet high. Leaves at first downy, at length green above and
 white beneath. Leaflets in 3—4 pairs.—The wood is valuable
 in many of the arts. White Ash.

3. *F. pubescens* Walt. : leaves pinnate ; leaflets petiolate, elliptical-
 ovate, serrate ; the under surface, petioles and young branches tomen-
 tose ; flowers calyculate.—*F. tomentosa* Mich. f.

HAB. Woods. Can. to Car. April, May. ♀.—A large tree.
 Leaflets in 3—4 pairs, acuminate, with a long summit, often near-
 ly entire, very long. Red Ash.

4. *F. juglandifolia* Lam.: leaves pinnate; leaflets petiolate, ovate, opaque, serrate, glaucous beneath; axils of the veins pubescent; branches smooth; flowers calyculate.

HAB. Wet woods. Can. to Car. May. ½.—A small tree.
Leaflets in 3 pairs. Swamp Ash.

*** Flowers calyculate, 4-petalled. Anthers pedicellate. ORNUS. Pers.

5. *F. ornus* Linn.: ? leaves pinnate; leaflets broad-ovate, serrate, the terminal one obcordate.—*Ornus europea* var. *americana* Pers.—*O. americana* Pursh.

HAB. Shady woods. Md. and Virg.; rare. May. ½. Pursh.

—A tree with opposite and unequally pinnate leaves. Flowers in panicles resembling those of *Chionanthus*. Fruit small and winged.—A very obscure plant, concerning which so little is known, that it is impossible to determine whether it is distinct from the foreign *F. ornus*, or a mere variety. It is certain, however, that the genus *Ornus* of Persoon is not sufficiently distinct from *Fraxinus*. Flowering Ash.

ORDER LXXVI. APOCYNEÆ. Juss. Lind.

Calyx divided in 5, persistent. *Corol* monopetalous, hypogynous, regular, 5-lobed, deciduous; æstivation contorted-imbricate. *Stamens* 5, inserted on the corol, alternate with its lobes; *filaments* distinct; *anthers* 2-celled, bursting longitudinally; *pollen* granular, globose, or 3-lobed, immediately applied to the stigma. *Ovaries* 3, or 1—2-celled, many-seeded; *styles* 2 or 1; *stigma* 1. *Fruit* a follicle, capsule, or drupe or berry, double or single. *Seeds* indefinite or rarely definite; *albumen* fleshy, cartilaginous, or horny, rarely wanting; *embryo* foliaceous; *radicle* turned to the hilum.

Plants with usually a milky juice. *Leaves* entire, generally opposite.

1. APOCYNUM. Linn.

Calyx very small, 5-cleft, persistent. *Corol* campanulate; border with 5 short spreading or revolute lobes; the base furnished with 5 glandular teeth alternating with the stamens. *Stamens* 5, included. *Anthers* sagittate, connivent, cohering to the stigma by the middle. *Ovaries* 2; *style* obsolete; *stigmas* dilated, conic at the apex. *Follicles* long, distinct.

Pentandria. Digynia.

1. *A. androsæmifolium* Linn.: leaves ovate, smooth on both sides; cymes lateral and terminal, smooth; tube of the corol longer than the calyx.

HAB. Fields, &c. Subarc. Amer. to Car. June, July. 2f.—
Stem 3—5 feet high, erect, with spreading branches. *Flowers*
 pale red, with the border spreading. Medicinal. *Big. Med Bot.*
 ii. 148. *Dog's Bane.*

2. *A. cannabinum* Linn. : leaves on short petioles, lanceolate, acute at each end, smooth on both sides ; cymes paniculate ; calyx as long as the tube of the corol.

HAB. Fields and woods. Can. to Car. W. to Miss. June, July. 2f.—*Stem* erect, branched. *Flowers* small, greenish-white, in terminal cymes.—Has the leaves narrower and the flowers smaller than in the preceding. *Indian Hemp.*

3. *A. hypericifolium* Ait. : leaves oblong, smooth, on very short petioles, mucronate, obtuse and subcordate at base ; cymes shorter than the leaves ; calyx nearly as long as the tube of the corol.

HAB. Gravelly banks of streams. N. S. June, July. 2f.—*Stem* 2 feet high, erect. *Flowers* small, greenish-white.—Plant smaller than the former.

4. *A. pubescens* Brown : leaves on short petioles, ovate-oblong, mucronate, hoary-pubescent beneath ; cymes short, pubescent ; corol longer than the calyx.—*A. cannabinum* Mich. Pursh.

HAB. Fields. N. S. June, July. 2f.—*Stem* 2—3 feet high. *Flowers* small, greenish-white.—Can be distinguished by the pubescence of its leaves and cymes.

ORDER LXXVII. ASCLEPIADEÆ. Brown. Lind.

Calyx 5-divided, persistent. *Corol* hypogynous, monopetalous, 5-lobed, regular deciduous ; æstivation contorted-imbricate, rarely valvate. *Stamens* 5, inserted into the base of the corol, and alternate with its segments ; *filaments* usually connate ; *anthers* 2-celled, each cell sometimes divided by incomplete septa ; *pollen*, when the anther bursts, coalescing into masses which are as numerous as the cells, or sometimes confluent by pairs, and sticking to the 5 processes of the stigma, either by twos, by fours, or singly. *Ovaries* 2 ; *ovules* indefinite ; *styles* 2, close to each other, often very short ; *stigma* 1, common to both styles, dilated, with 5 corpusculiferous angles. *Placenta* attached to the suture, at length separating. *Follicles* 2, 1 of which is sometimes abortive. *Seeds* indefinite, imbricate, pendulous, usually with a coma at the hilum ; *albumen* thin ; *embryo* straight ; *radicle* superior ; *cotyledons* foliaceous.

Plants, with usually a milky juice, often twining. *Leaves* entire, usually opposite, with interpetiolar ciliæ, instead of stipules.

1. ASCLEPIAS. Linn.

Calyx small, 5-parted. *Corol* 5-parted, reflexed. *Stamineal crown* (nectary) 5-leaved; leaflets opposite the anthers, each producing from its base a subulate averted process. *Stigma* with 5-angles, opening by longitudinal chinks, depressed. *Pollinia* 5 distinct pairs. *Follicles* 2, ventricose, smooth or muricate. *Seeds* comose. *Pentandria*. *Digynia*.

* *Leaves opposite. Nectaries with horns.*

1. *A. syriaca* Linn.: stem simple; leaves oblong-lanceolate, petiole, tomentose beneath; umbel subterminal, many-flowered, nodding; flowers large; nectary 2-toothed; follicles muricate.

HAB. Fields and road sides. N. S. W. to Miss. July, Aug. 2f.—*Stem* 2—4 feet high. *Umbels* lateral and terminal, 15—20 flowered. *Flowers* large, pale purple. *Nectaries* red.

Common Milk-weed.

2. *A. phytolaccoides* Pursh: stem erect, simple; leaves broad-lanceolate, acuminate, smooth, pale beneath; umbels many-flowered, lateral and terminal, solitary, on long peduncles, nodding; nectary 2-toothed.—*A. exaltata* and *acuminata* Muhl.

HAB. Wet rocky grounds. Can. to Car. W. to Miss. June, July. 2f.—*Stem* 3—4 feet high. *Leaves* large. *Umbels* few-flowered, on long peduncles. *Flowers* large, greenish-purple.—A more delicate species than the preceding.

3. *A. debilis* Mich.: smooth; stem erect, weak, simple; leaves petioled, oval-lanceolate, acute at each end, membranaceous; umbels terminal, loose; pedicels capillary.—*A. parviflora* Linn.?

HAB. Rocks near streams. N. Y. to Car. July, Aug. 2f.—*Leaves* large. *Flowers* white. Pursh.

4. *A. incarnata* Linn.: stem erect, tomentose, branched above; leaves lanceolate, subsessile, somewhat tomentose; umbels erect, mostly in pairs; nectary entire; horns subulate, exserted.

b. pulchra Pers.: stem and leaves very hairy.—*A. pulchra* Willd.

HAB. Banks of streams. Can. to Car. W. to Miss. July, Aug. 2f.—*Stem* 2—4 feet high. *Umbels* numerous, generally in pairs. *Flowers* pale purple. Var. *b.* differs only in its pubescence.

5. *A. amana* Linn.: stem erect, branched above, with 2 longitudinal pubescent lines; leaves subsessile, oblong-oval, acute, pubescent beneath; umbels terminal, erect, many-flowered; nectary entire; horn subulate, exserted.

HAB. Swamps and wet grounds. N. S. July, Aug. 2f.—*Stem* 3 feet high. *Umbels* many-flowered. *Flowers* purple.

6. *A. purpurascens* Linn.: stem erect, nearly simple; leaves ovate, subsessile, nearly smooth above, white, downy beneath, with the midrib broad and purple; umbels erect; horns of the nectary resupinate.

HAB. Near Boston. Big. July. 2f.—*Stem* 3—4 feet high.

Umbels terminal, on short peduncles. *Flowers* dark purple, about the size of *A. syriaca*.—Well defined by the peculiar curvature of the horn.

7. *A. obtusifolia* Mich. : stem simple, erect ; leaves closely sessile or clasping, oblong-obtuse, undulate on the margin, very smooth, glaucous beneath ; umbel terminal, long peduncled, generally solitary ; nectary slightly 2-toothed ; horns exserted.—*A. purpurascens* Walt.

HAB. Sandy fields. N. Y. to Car. June. 2l.—Stem 2—3 feet high, erect, simple, very smooth. *Umbels* 1—3, terminal, on long peduncles. *Leaves* much waved on the margin. *Flowers* large, pale purple.

8. *A. variegata* Linn. : stem simple, erect ; leaves ovate, petiolate, smooth, somewhat glaucous beneath ; umbels lateral and terminal, on short peduncles, crowded ; pedicels tomentose ; horn broad-falcate.—*A. hybrida* Mich.

HAB. Woods. N. Y. to Car. July, Aug. 2l.—Stem 3—4 feet high, pubescent above. *Leaves* slightly acuminate, on pubescent petioles. *Umbels* 2—6, densely flowered. *Flowers* white.

9. *A. acuminata* Pursh : stem erect, very smooth, simple ; leaves ovate, subcordate, acuminate, subsessile ; umbels lateral, solitary, erect ; nectary acute ; horns scarcely exserted.—*A. periplocifolia* Nutt.—*A. cordata* Walt.

HAB. Sandy swamps. N. J. to Car. Aug. 2l.—Root large and tuberous. Stem 18 inches high. *Leaves* smooth on both sides. *Umbels* about 2, dense. *Flowers* purple and green.

10. *A. laurifolia* Mich. : stem erect, smooth ; leaves nearly sessile, oval-lanceolate, tapering at the summit, very acute, smooth, margins somewhat rough ; umbels on long peduncles, terminal and axillary.

HAB. Penn. Muhl. Aug. 2l.—Stem 2 feet high, pubescent near the top. *Leaves* sessile, obtuse at base. *Umbels* few, near the summit. Corol 3 or 4 times as the long as calyx, green and purple.

11. *A. quadrifolia* Jacq. : stem erect, simple, smooth ; leaves in fours, ovate, acuminate, membranaceous, petiolate, smooth ; umbels 2, terminal, erect, loose ; pedicels capillary ; nectary 2-toothed ; horn very short.

HAB. Stony woods. Can. to Car. W. to Miss. June. 2l.—Stem 1—2 feet high, slender, pubescent towards the top. *Leaves* in fours ; the upper and lower ones often opposite. *Umbels* few, on long peduncles. *Flowers* small, white.

12. *A. verticillata* Linn. : stem simple, marked with pubescent lines ; leaves mostly whorled, narrow-linear, revolute ; nectaries short, bidentate ; horns falcate, much exserted.

HAB. Dry hills. N. Y. to Car. W. to Miss. June, July. 2l.—Stem 3 feet high, very slender. *Leaves* generally in whorls of 5 or 6, 2—3 inches long, very narrow. *Umbels* numerous. *Flowers* small, yellowish-white.

** *Leaves opposite. Nectary without horns. ACERATES.*

13. *A. viridiflora* Raf. : stem erect, simple, hairy ; leaves oblong, on short petioles ; tomentose-pubescent on both sides, obtuse ; umbels lateral, solitary, subsessile, nodding, dense ; pedicels tomentose ; horns of the nectary wanting.—*A. nutans* Muhl.

b. obovata Torr. : leaves obovate.—*A. obovata* Ell.

HAB. Sandy fields. N. S. W. to Miss. July. 2f.—Stem 2 feet high, very pubescent. *Leaves* thick, nearly sessile, varying in form. *Umbels* about 3, on long peduncles. *Flowers* green.

14. *A. lanceolata* Ives : stem decumbent, hirsute ; leaves opposite, lanceolate, acute, subsessile, hirsute ; umbels lateral, solitary, sessile, nodding, subglobose, dense flowered ; horn of the nectary wanting.—*A. viridiflora* var. *lanceolata* Torr.

HAB. Near New Haven, Conn. Ives. July. 2f.—Certainly distinct from the preceding.

*** *Leaves alternate.*

15. *A. tuberosa* Linn. : stem erect, hairy, with spreading branches ; leaves oblong-lanceolate, sessile, alternate, somewhat crowded ; umbels numerous, forming terminal corymbis.

HAB. Sandy fields. Can. to Car. W. to Miss. July, Aug. 2f.—Root large, tuberous. Stem 2—3 feet high, with spreading branches above. *Flowers* large, in numerous erect umbels, bright orange. Medicinal. *Big. Med. Bot.* ii. 59.

Pleurisy Root.

2. GONOLOBUS. Mich.

Corol rotate, 5-parted. *Stamineal crown* scutelliform, lobed. *Anthers* opening transversely, terminated by a membrane. *Pollinia* 5 pairs, not separating into grains. *Stigma* flattish-depressed. *Follicles* 2, ventricose. *Seeds* comose.

Pentandria. Digynia.

1. *G. obliquus* Brown : stem climbing, hairy ; leaves ovate-cordate, villous, acute ; corymbis axillary ; segments of the corol ovate, acuminate, oblique, revolute ; calyx small.—*Cynanchum obliquum* Muhl.

HAB. Near Philadelphia, Penn. Bart. July. 2f.—Stem 4—5 feet long. *Leaves* veined on both sides. *Umbels* axillary, much shorter than the leaves. *Flowers* fetid, dark purple.

2. *G. hirsutus* Mich. : stem twining ; younger branches very hairy ; leaves cordate-oval, acuminate, pubescent on both sides ; segments of the corol linear-oblong ; follicles oblong, muricate.—*Gonolobium hirsutum* Pursh.

HAB. Hedges near streams. Penn. to Car. Pursh. June, July. 2f.—Stem trailing and climbing, 3—4 feet long, pubescent. *Leaves* slightly auriculate at base. *Umbels* axillary, 3—4-flowered. *Flowers* dark purple.

3. PERIPLOCA. *Linn.*

Calyx 5-cleft. *Corol* rotate, flat, 5-parted; orifice surrounded with an urceolate 5-cleft crown, terminating in 5 filiform awns. *Filaments* distinct. *Anthers* cohering, bearded on the back. *Pollinia* dilated at the apex and united to the corpuscles of the stigma, solitary, composed of 4 confluent grains. *Follicles* 2, smooth, divaricate. *Seeds* comose.

Pentandria. Digynia.

P. græca *Linn.*: climbing; leaves opposite, ovate, acuminate; flowers hairy within, and terminal.

HAB. Western part of N. Y. Aug. 7.—*Shrub* climbing. *Leaves* on short petioles. *Corymbs* axillary, on long peduncles. *Flowers* dark purple.—It has been found, and I believe growing wild, near Rochester, N. Y., by my friend Dr. Samuel B. Bradley.

ORDER LXXVIII. SPIGELIACEÆ. *Lind.*

Calyx inferior, regularly 5-parted. *Corol* hypogynous, 5-lobed; æstivation valvate. *Stamens* 5, inserted into the corol; *pollen* triangular, the angles globular. *Ovary* free, 2-celled; *ovules* few; *style* articulated with the ovary; *stigma* simple. *Fruit* capsular, 2-celled, 2-valved, the valves turned inwards at the margin, and separating from the central placenta. *Seeds* several, small; *albumen* copious, fleshy; *embryo* very minute; *radicle* next the hilum.

Leaves entire, opposite, with stipules, or a tendency to produce them.

1. SPIGELIA. *Linn.*

Calyx 5-parted. *Corol* funnel-form; border 5-cleft, equal. *Stamens* 5. *Anthers* convergent. *Capsule* didymous, 2-celled, 4-valved, many-seeded. *Pentandria. Monogynia.*

S. marilandica *Linn.*: stem simple, square, smooth; leaves all opposite.

HAB. Woods. Penn. to Car. W. to Arkansa. 2f.—*Stem* 6—18 inches high. *Leaves* sessile, ovate-lanceolate. *Flowers* in a simple second terminal raceme, large, crimson. Medicinal. *Big. Med. Bot.* i. 142. *Pink-root. Worm-grass.*

ORDER LXXIX. GENTIANEÆ. *Juss. Lind.*

Calyx monophyllous, 5—10-divided, inferior, persistent. *Corol* hypogynous, monopetalous, usually regular, withering

or deciduous ; limb divided into as many lobes as the calyx ; æstivation imbricate-twisted. *Stamens* inserted upon the corol, alternate with the segments and equal to them in number, some occasionally abortive ; *pollen* 3-lobed or triple. *Ovary* single, 1—2-celled, many-seeded ; *style* 1, continuous ; *stigmas* 1 or 2. *Fruit* capsular or fleshy, 1-celled, usually 2-valved, the margins of the valves turned inwards, and in the genera with 1-cell bearing the seeds ; in the 2-celled genera inserted into a central placenta. *Seeds* small ; *embryo* straight, in the axis of soft fleshy *albumen* ; *radicle* opposite the hilum.

Herbs, rarely *shrubs*. *Leaves* opposite, without stipules.

1. GENTIANA. Linn.

Calyx 4—5-cleft. *Corol* tubular at base, campanulate, or funnel-form, 4—5-cleft, with the orifice naked. *Stamens* 4—5, included. *Stigma* 2-lobed. *Capsule* 1-celled, 2-valved. *Seeds* without any margin. *Pentandria. Digynia.*

* *Corol* 5—10-cleft, campanulate, or funnel-form.

1. *G. saponaria* Linn. : stem terete, smooth ; leaves ovate-lanceolate, acute, 3-nerved ; flowers axillary and terminal, sessile, capitate-verticillate ; corol ventricose, closed, 5-cleft ; inner segments unequally 2-cleft, as long as the outer ones ; segments of the calyx ovate, shorter than the tube.—*G. catesbæi* Walt.

HAB. Woods and meadows. Can. to Car. Sept., Oct. 24.—
Stem 1—2 feet high. Leaves opposite, sessile. Flowers very large, bright blue. Soap Gentian.

2. *G. ochroleuca* Willd. : stem subangular ; leaves ovate-lanceolate, acute, scabrous on the margin ; flowers in terminal subsessile fascicles ; segments of the calyx linear-lanceolate ; corol campanulate-ventricose, 5-cleft ; segments acute, slightly connivent ; inner ones short toothed.—*G. saponaria* Walt.—*G. villosa* Linn.

HAB. Sandy fields. N. J. to Flor. Aug., Sept. 24.—Stem a foot high, a little scabrous. Flowers yellowish-white, inside striped with blue and purple, large.

3. *G. pneumonanthe* Linn. : stem terete, smooth ; leaves linear-lanceolate, obtuse ; terminal flowers fascicled ; lateral ones solitary, peduncled ; corol campanulate, 5-cleft ; segments rounded ; inner folds 1-toothed, short.—*G. pseudo pneumonanthe* R. & S.

HAB. Swamps, &c., near Portland, Maine. Big. Aug., Sept. 24.—Stem a foot high. Flowers large, blue.—Allied to *G. saponaria*, but much more slender in all its parts.

4. *G. quinqueflora* Willd. : stem square, branched ; leaves ovate-lanceolate, subclasping, acute, 3-nerved ; flowers somewhat in fives, axillary and terminal, pedicellate ; corol tubular-campanulate, 5-cleft ;

segments lanceolate, mucronate ; calyx very short.—*G. amarelloides* Mich. Pursh.

HAB. Woods. N. Y. to Car. W. to Miss. July, Aug. ♂.—
Stem 12—18 inches high. Flowers small, pale blue, generally
3—5 on the summit of the branches.

5. *G. angustifolia* Mich. : stem terete, smooth, simple, slender, 1-flowered ; leaves linear, spreading, smooth, the lower ones somewhat wedge-shaped ; corol funnel-form, 5-cleft ; inner segments lacerate.—
A. purpurea Walt.

HAB. Sandy fields. N. J. to Car. Aug., Sept. 2f.—Stem a foot high. Flowers large, sky blue, terminal.

6. *G. linearis* Willd. : stem simple, somewhat scabrous ; leaves linear-lanceolate, undulate, and with the segments of the calyx ciliate ; flowers sessile, in crowded terminal fascicles ; corol campanulate, 5-cleft ; segments obtuse, with the inner folds toothed.—*G. puberula* Mich.

HAB. Mountains. Penn. Pursh. Aug. 2f.—Flowers blue, middle-sized.

** Corol 4-cleft, funnel-form ; segments ciliate. CROSSOPETALUM.

7. *G. crinita* Willd. : stem smooth, terete, below, square above ; branches elongated, 1-flowered ; leaves lanceolate, acute ; corol 4-cleft ; segments obovate, fringed at the top ; inner folds simple.

HAB. Pastures and Woods. Can. to Car. Oct., Nov. ♂.—
Stem 18 inches high. Flowers large, sky blue, fringed on the edges, tetrandrous. Fringed Gentian.

2. SWERTIA. Linn.

Calyx flat, 4—5-parted. Corol rotate ; tube very short ; border 4—5-parted ; segments lanceolate, with 2 nectariferous ciliate pores at the base of each. Stamens 4—5. Style short, terminated by 2 stigmas. Capsule 1-celled, 2-valved.

Tetrandria. Monogynia.

1. *S. deflexa* Smith : stem 4-sided ; branches short ; leaves opposite, sessile, ovate ; corol campanulate, with deflexed horns at the base.—
S. corniculata Pursh.

HAB. Swamps. Can. and N. Y. Aug. ♂.—Stem 18 inches high. Flowers axillary and terminal, greenish-yellow.—Plant almost black when dried. It has been found in Canada by Mr. Goldie, and near Fairfield, N. Y. by Prof. Hadley. Felwort.

2. *S. pusilla* Pursh : stem simple, 1-flowered ; leaves few, small, oblong ; corol rotate, twice as long as the calyx ; segments oblong, acuminate.

HAB. White Hills, N. H. June. 2f. Pursh.—Stem an inch high. Leaves 1 or 2 pairs, small. Flowers large, blue.

3. FRASERA. Walt.

Calyx deeply 4-parted. *Corol* 4-parted, spreading; segments oval, with a bearded orbicular gland in the middle of each. *Stamens* 4. *Capsule* compressed, partly margined, 1-celled. *Seeds* few, imbricate, large, elliptic, with a membranaceous margin. *Tetrandria. Monogynia.*

F. walteri Mich.—*F. caroliniensis* Walt.—*F. verticillata* Muhl.

HAB. Swamps. N. Y. to Car. July. ♂.—*Stem* 3—6 feet high, nearly square, branched, furrowed. *Leaves* smooth, usually whorled, sometimes opposite, oblong-lanceolate. *Flowers* on whorled peduncles, greenish-yellow. *Peduncles* 1-flowered.—This rare and interesting plant has been found by Prof. Hadley in the vicinity of Fairfield, N. Y. Medicinal.

American Columbo,

4. SABBATIA. Adans.

Calyx 5—12-parted. *Corol* rotate, 5—12-parted. *Stamens* 5. *Anthers* at length revolute. *Stigmas* 2, spiral. *Capsule* 1-celled, 2-valved. *Pentandria. Monogynia.*

1. *S. campanulata* Torr.: stem terete; leaves linear-lanceolate, smooth; calyx as long as the corol.—*Chironia campanulata* Linn.

HAB. Wet grounds. Penn. to Car. July, Aug. ♂.—*Stem* a foot high, terete, with long branches. *Flowers* terminal, subsolitary, purple, on long peduncles.

2. *S. stellaris* Pursh: stem terete, dichotomously branched; branches elongated, 1-flowered; leaves sessile, lanceolate, acute; segments of calyx subulate, half as long as the corol; segments of the corol obovate.—*S. gracilis* Ell.

HAB. Salt marshes. N. Y. to Car. Aug. ♂.—*Stem* 12—18 inches high. *Leaves* somewhat fleshy, obscurely 3-nerved. *Flowers* solitary, at the extremity of the branches, forming a small corymb, rose coloured.

3. *S. angularis* Pursh: stem erect, square, somewhat winged; leaves ovate, clasping; peduncles elongated, corymb; segments of the calyx lanceolate, much shorter than the corol.—*Chironia angularis* Linn.

HAB. Wet meadows. Can. to Car. Aug. ☉ and ♂.—*Stem* 1—2 feet high, with opposite branches. *Leaves* obscurely 5-nerved. *Flowers* rose coloured. *American Centaury.*

4. *S. calycosa* Pursh: stem erect, leafy, few-flowered; leaves oblong, 3-nerved; flowers solitary, 7—9-parted; calyx leafy, longer than the corol; segments oblanceolate.—*Chironia calyculosa* Mich.—*C. dichotoma* Walt.

HAB. Wet meadows. N. Y. to Car. Aug. ♂.—*Stem* a foot high, slightly angled, with few branches. *Leaves* sessile, oval, thin. *Flowers* terminal, often solitary.

5. *S. chloroides* Pursh: stem weak, somewhat angled; leaves lanceolate, erect; branches few, 1-flowered; flowers 7—12-parted; segments of the calyx linear, shorter than the corol.—*Chironia chloroides* Mich.—*C. dodecandra* Walt.—*Chlora dodecandra* Linn.

HAB. Salt bogs. N. Y. to Car. Aug. ♂.—Stem 2—3 feet high. Leaves closely sessile, acute, without nerves. Flowers solitary, terminal, bright rose coloured.—This and the preceding are very variable.

6. *S. corymbosa* Bald.: stem erect, nearly square; leaves ovate, closely sessile; flowers corymbed; segments of the calyx subulate, much shorter than the corol.—*S. paniculata* var. *a.* Pursh.—*Chironia lanceolata* Walt.

HAB. Swamps. N. J. to Car. Aug., Sept. ♀.—Stem a foot high, branched near the summit. Leaves somewhat clasping. Corymb few-flowered. Corol white, 4—6-parted.

5. ERYTHRÆA. Rich.

Calyx 5-cleft. Corol funnel-form; limb short, 5-cleft, spreading. Stamens 5. Anthers, after flowering, spiral. Style erect. Stigmas 2, roundish. Capsule 1-celled, linear. Pentandria. Monogynia.

E. centaurium Pers.: stem erect, nearly simple; leaves ovate-oblong, nerved; flowers subsessile, fasciculate-paniculate; calyx half as long as the tube of the corol.—*Chironia centaurium* Willd.

HAB. Dry grounds. N. S. July, Aug. ♂.—Stem 8—12 inches high. Leaves variable; the lower ones broader than the upper. Flowers in fascicles, near the top of the stem.—I have specimens of this plant which were found near Oswego, N. Y. by the Rev. David Brown of Lockport. It is apparently indigenous.

6. EXACUM. Linn.

Calyx deeply 4-parted. Corol 4-lobed, with the tube globose. Stamens 4. Style 1. Stigma 2-cleft. Capsule bisulcate, 2-celled, many-seeded. Tetrandria. Monogynia.

E. pulchellum Pursh: calyx 4-parted; corol 4-cleft, segments subulate; panicle corymbed; peduncle filiform.

HAB. Sea Coast. N. J. rare. Aug. ♂.—Flowers rose coloured.

7. HOUSTONIA. Linn.

Calyx 4-cleft. Corol funnel-form, 4-cleft. Stamens 4. Stigma simple. Capsule half superior, 2-celled, 2-valved, many-seeded, opening transversely.

Tetrandria. Monogynia.

1. *H. carulea* Linn.: stem erect, setaceous, dichotomous; radical leaves spatulate-oval; stem leaves lanceolate; peduncles solitary, ax-

illary, very long, 1-flowered; segments of the corol acute.—*H. linnei Mich.*

HAB. Fields. N. Y. to Flor. April, May. 2f.—Stem 4—8 inches high. Flowers blue, sometimes nearly white.

2. *H. longifolia Willd.*: stem branched, smooth; leaves narrow-lanceolate, tapering at each extremity, very smooth; flowers mostly in threes, terminal, nearly sessile.—*H. angustifolia Mich.*

HAB. Hills and mountains. N. Y. to Flor. W. to Miss. June. 2f.—Stem 6—10 inches high, branched at the top. Leaves about an inch long. Flowers often by threes, purple.

3. *H. purpurea Willd.*: stem erect, branched above, pubescent at the joints; leaves sessile, ovate or lanceolate, obtuse at base; flowers in terminal corymbs.—*H. varians Mich.*

HAB. Dry woods. Penn. to Car. Pursh. June—Aug. 2f.—Stem erect, with the angles ciliate. Leaves broad, 3-nerved. Flowers purple, in terminal corymbs.

4. *H. ciliolata Torr.*: smooth, branched above, with remote joints; radical leaves ovate, obtuse, tapering at base; margin ciliate; stem leaves ovate-spathulate, sessile; flowers in terminal corymbs; pedicelled; peduncles trichotomous; segments of the calyx linear-lanceolate.

HAB. Wet rocks. Niagara Falls, N. Y. W. to Michigan. July. 2f.—Stem 4—6 inches high. Flowers terminal, blue.

5. *H. pubescens Raf.*: leaves wedge-form, acute, pubescent; the lower ones somewhat petioled, lanceolate; upper ones semi-oval, sessile; panicle trichotomous, terminal.

HAB. Penn. and Ohio. Raf.

8. CENTAURELLA. Mich.

Calyx 4-parted, appressed. *Corol* subcampanulate, 4-parted; segments somewhat erect. *Stamens* 4. *Stigma* thick, glandulous and partly bifid. *Capsule* 1-celled, 2-valved, many-seeded, surrounded by the persistent calyx and corol.

Tetrandria. Monogynia.

C. paniculata Mich.: stem somewhat branched, smooth; peduncles opposite, the lower ones branched; leaves minute, subulate, alternate below, nearly opposite above; flowers in panicles; corol as long as the calyx; style very short.—*C. autumnalis Pursh.*—*Bartonia paniculata Muhl. Torr.*—*Sagina virginica Willd.*

HAB. Damp grounds. Mass. to Car. Aug., Sept. 5.—Stem 4—8 inches high, square, often twisted. Flowers small, greenish-white, on the ends of the branches.

9. VILLARSIA. Vent.

Calyx 5-parted. *Corol* rotate; tube short; limb spreading, 5-lobed, ciliate on the margin. *Stamens* 5. *Style* 1.

Stigma 2-lobed. *Glands* 5, alternating with the stamens. *Capsule* 1-celled, 2-valved, many-seeded.

Pentandria. Monogynia.

V. lacunosa Pursh : leaves reniform, subpeltate, slightly crenate, lacunose beneath ; petioles bearing the flowers ; corol smooth.—*V. aquatica* R. & S.—*V. trachysperma* Ell.—*Menyanthes trachysperma* Mich.

HAB. Ponds and lakes. N. Y. to Car. Aug. 24.—*Stem* long, filiform, floating. *Leaves* on long petioles. *Flowers* white, somewhat umbelled.—Abundant in Sand Lake, N. Y.

10. MENYANTHES. Linn.

Calyx 5-parted. *Corol* funnel-form ; limb spreading, 5-lobed, equal, hairy within. *Stamens* 5. *Style* 1. *Stigma* capitate. *Capsule* 1-celled, with the axis of the valves seminiferous.

Pentandria. Monogynia.

M. trifoliata Linn. : leaves ternate, petioled, sheathing, smooth.

HAB. Marshes. Subarc. Amer. to Virg. May. 24.—*Stem* 8—12 inches high. *Flowers* pale red, in a terminal raceme.

Buck-bean.

11. OBOLARIA. Linn.

Calyx 2-parted, in the form of bracts. *Corol* campanulate, 4-cleft ; segments entire, sometimes crenulate. *Stamens* 4, subdidynamous, proceeding from the clefts of the corol. *Stigma* emarginate. *Capsule* ovate, 1-celled, 2-valved, many-seeded.

Tetrandria. Monogynia.

O. virginica Linn.

HAB. Woods. Penn. to Car. April, May. 24.—*Stem* 4—6 inches high, cespitose, nearly simple, smooth. *Leaves* opposite, obovate, sessile, glaucous. *Flowers* in pairs or threes, towards the top of the stem, white or pale red.

ORDER LXXX. BIGNONIACEÆ. Brown. Lind.

Calyx divided or entire, sometimes spathaceous. *Corol* hypogynous, monopetalous, usually irregular, 4—5-lobed. *Stamens* 5, unequal, always 1, sometimes 3, sterile ; *anthers* 2-celled. *Ovary* seated in a disk, 2-celled, or spuriously 4-celled, many-seeded. *Style* 1 ; *stigma* of 2 plates. *Capsule* 1 or 2-celled, sometimes spuriously 2 or 4-celled, 2-valved. *Seeds* transverse, compressed, often winged ; *albumen* none ; *embryo* straight, foliaceous ; *radicle* next the hilum.

Trees or *shrubs*, often twining or climbing. *Leaves* opposite, or rarely alternate, without stipules.

1. BIGNONIA. *Linn.*

Calyx 5-toothed, cyathiform, partly coriaceous. *Corol* 5-lobed, campanulate, ventricose on the under side. *Stamens* didynamous. *Pod* 2-celled. *Seeds* membranaceously winged. *Didynamia. Angiosperma.*

B. radicans *Linn.* : stem creeping ; leaves pinnate ; leaflets ovate, toothed, acuminate ; corymb terminal ; tube of the corol three times as long as the calyx.

HAB. Banks of streams. Penn. to Flor. W. to Miss. July, Aug. $\frac{1}{2}$.—Creeping on trees and rocks. *Flowers* very large, scarlet. *Trumpet Flower.*

2. CATALPA. *Juss.*

Calyx 2-parted. *Corol* campanulate ; tube ventricose ; border 4-lobed, unequal. *Stamens* 2, fertile ; 2—3 sterile. *Stigma* in 2 plates. *Capsule* pod-form, long, cylindric, 2-valved. *Dissepiment* opposite to the valves. *Seed* membranaceously margined. *Diandria. Monogynia.*

C. cordifolia *Ell.* : leaves simple, cordate, entire ; flowers paniced. —*C. bignonioides* *Walt.*—*C. syriacifolia* *Sims.* *Pursh.*—*Bignonia Catalpa* *Linn.*

HAB. Fields, about habitations. N. Y. to Flor. and throughout the Western and Southwestern States. July. $\frac{1}{2}$.—A large tree with irregular branches. *Leaves* round, cordate, whorled in threes, large. *Flowers* white, yellow and purple, in large pyramidal terminal panicles. Probably introduced, as it is generally found in the vicinity of habitations, Indian encampments, &c.

ORDER LXXXI. PEDALINEÆ. *Brown. Lind.*

Calyx divided into 5 nearly equal pieces. *Corol* monopetalous, hypogynous, irregular ; tube ventricose, the limb 5-lobed, bilabiate. *Stamens* 4, didynamous, (2 sometimes sterile,) with the rudiment of a fifth. *Ovary* seated in a glandular disk, 1—2-celled, of 2 carpels, the introflexed margins of which by splitting and diverging constitute several cells ; *ovules* few in each spurious cell ; *style* 1 ; *stigma* divided. *Fruit* drupaceous, or rarely capsular and 2-valved, spuriously many-celled. *Seeds* few, large, pendulous ; *albumen* none ; *embryo* straight.

Herbs, with opposite *leaves* and axillary *flowers*.

1. MARTYNIA. *Linn.*

Calyx 5-cleft. *Corol* ringent. *Capsule* ligneous, corticate, 4-celled, 2-valved ; each of the valves terminating in a long hooked beak. *Didynamia. Angiosperma.*

M. proboscidea Linn.: stem viscid, pubescent, branched, mostly decumbent; leaves alternate, cordate, nearly round, very entire, villous; flowers axillary, on long peduncles.

HAB. River banks. Penn. to Car. W. to Miss. Aug., Sept.

♂.—Stem 1—2 feet long. Flowers dull yellow, large, spotted.
Whole plant fetid. Unicorn Plant.

ORDER LXXXII. POLEMONIACEÆ. Lind.

Calyx 5-parted, persistent, sometimes irregular. *Corol* regular, 5-lobed. *Stamens* 5, inserted on the middle of the tube of the corol and alternate with its segments. *Ovary* superior, 3-celled; *ovules* ascending; *style* simple; *stigma* trifid. *Capsule* 3-celled, or spuriously so, 3-valved, with a loculicidal dehiscence; the valves separating from the axis. *Seeds* angular or oval, often enveloped in mucus, ascending; *embryo* straight in the axis of horny *albumen*; *radicle* inferior, next the hilum; *cotyledons* elliptical, foliaceous.

Herbs, with opposite or alternate, simple or variously divided leaves.

1. PHLOX. Linn.

Calyx prismatic, deeply 5-cleft; segments connivent. *Corol* salver-form; border 5-lobed, flat; lobes cuneate. *Stamens* inserted above the middle of the tube of the corol, very unequal. *Capsule* roundish, ovate, 3-celled; cells 1-seeded.

Pentandria. Monogynia.

1. *P. paniculata* Linn.: stem erect, smooth; leaves lanceolate, flat, the margin scabrous; corymb paniced; segments of the corol rounded; calyx tapering to an awn.

HAB. Meadows. Penn. to Car. June, July. 2f.—Stem 2—3 feet high. Leaves opposite. Flowers in opposite corymbs, somewhat paniculate, purple; tube of the corol pubescent, much longer than the calyx.

2. *P. pyramidalis* Smith: erect, smooth; stem scabrous; leaves cordate-ovate, acute; panicle fastigiate, pyramidal; segments of the corol cuneate, truncate; teeth of the calyx somewhat erect, lanceolate, acute.

HAB. Mountain meadows. Penn. to Car. Aug. 2f. Pursh.—Stem 2—3 feet high. Leaves opposite, sessile, very entire. Corol beautiful purple.

3. *P. maculata* Linn.: stem erect, scabrous and spotted; leaves oblong-lanceolate, smooth, with the margin scabrous; panicle oblong,

many-flowered ; segments of the corol rounded ; teeth of the calyx acute, recurved.

b. suaveolens Nutt. : stem without spots ; corol white.—*P. suaveolens* Ait.—*P. maculata* var. *candida* Mich.

HAB. Moist meadows. N. J. to Car. June. 2f.—Stem 2—3 feet high, simple. *Corymbs* few-flowered. *Corol* pale purple. Var. *b.* according to Mr. Nuttall is only a white flowered variety, raised from seed.

4. *P. aristata* Mich. : stem erect, weak, viscid-pubescent ; leaves linear or linear-lanceolate ; panicle lax, fastigiate ; segments of the corol obovate ; tube curved, pubescent ; teeth of the calyx very long, subulate.

HAB. Wet woods. N. J. to Car. W. to Miss. June. 2f.—Stem 18 inches high, simple. *Leaves* sometimes nearly linear, with the margins revolute. *Teeth* of the calyx awned. *Corol* pale purple or white.—*P. pilosa* is not distinct from this species.

5. *P. divaricata* Linn. : stem low, pubescent, decumbent ; leaves oval-lanceolate, the upper ones alternate ; branches divaricate, loose, few-flowered ; segments of the corol slightly obcordate ; teeth of the calyx linear, subulate.

HAB. N. Y. and Penn. June. 2f.—Stems numerous, 9—12 inches high. *Flowers* in a terminal panicle, blue.—Dr. Gray informs me that this species is very abundant near Utica, N. Y.

6. *P. reptans* Mich. : pubescent, with creeping suckers ; radical leaves spatulate-obovate ; stem leaves oval-lanceolate ; corymb few-flowered, divaricate ; segments of the corol obovate ; teeth of the calyx subulate, reflexed.—*P. stolonifera* Pursh.

HAB. Mountains. Penn. to Car. June. 2f.—Stem 6—8 inches high. *Flowers* in a small corymb, blue, with a purple centre.

7. *P. subulata* Linn. : procumbent, cespitose, pubescent ; leaves linear-subulate, rigid, ciliate ; corymb few-flowered ; segments of the corol wedgeform, emarginate ; calyx with subulate teeth shorter than the tube of the corol.

HAB. Rocky hills. N. J. to Car. April, May. 2f.—Stem 3—4 inches high. *Flowers* pink, with a purple centre.—Very abundant near New-Brunswick, N. J. *Mountain Pink.*

8. *P. setacea* Linn. : procumbent, cespitose, hairy ; leaves fasciculate, subulate, ciliate, rigid ; pedicels few-flowered, terminal, somewhat umbelled ; segments of the corol wedgeform, emarginate ; teeth of the calyx subulate, much shorter than the tube of the corol.

HAB. Penn. to Car. May. 2f.—*Flowers* large, reddish, with a purple star in the centre.—Resembles the preceding, but the leaves are longer and more hairy.

2. POLEMONIUM. Linn.

Calyx campanulate, 5-cleft. *Corol* rotate ; limb 5-lobed, erect. *Stamens* 5 ; filaments broader at the base, inserted

upon the 5 teeth or valves which close the orifice of the corol.
Anthers incumbent. *Pentandria. Monogynia.*

P. reptans Linn.: stem erect, branched, smooth; leaves pinnate, mostly by sevens; leaflets ovate-lanceolate, acute; flowers terminal, nodding.

HAB. Hills. N. Y. to Car. W. to Miss. May. 21.—Stem a foot high. *Flowers* blue, somewhat corymbose.

Jacob's Ladder.

ORDER LXXXIII. CONVULVULACEÆ. Lind.

Calyx 5-divided, persistent. *Corol* deciduous, regular, 5-lobed; æstivation usually plicate. *Stamens* 5, inserted into the base of the corol, alternate with its segments. *Torus* discoid. *Ovary* free, with 2—4-cells, seldom with 1; *ovules* erect, definite, when more than 1 collateral; *style* 1, sometimes entire, usually bifid, rarely 2; *stigmas* obtuse or acute. *Capsule* with from 1—4-cells; the valves fitting at their edges to the angles of a loose dissepiment, bearing the seeds at the base, sometimes valveless or dehiscing transversely. *Seeds* at the base of the placentæ; *albumen* mucilaginous; *embryo* curved; *cotyledons* shrivelled; *radicle* inferior.

Herbs or *shrubs*, usually twining and with a milky juice. *Leaves* alternate, without stipules.

1. CONVULVULUS. Linn. Spreng.

Calyx 5-parted, naked or with 2 bracts at base. *Corol* funnel-form or campanulate, with 5 plaits. *Stamens* 5, shorter than the limb. *Ovary* 2—3-celled; cells 2-seeded. *Style* undivided. *Stigma* capitate, lobed or divided. *Capsule* valved, 1—4-celled. *Pentandria. Monogynia.*

OBS. I concur with Sprengel in uniting *Ipomœa* with this genus; which can scarcely be distinguished, except perhaps, by its simple stigma—a character too unimportant for the basis of a generic distinction.

1. *C. arvensis* Linn.: stem climbing; leaves saggitate, with acute lobes; peduncles mostly 1-flowered; bracts minute, remote from the flower.—*C. sagittifolius* Mich.?

HAB. Fields. Maine to Car. rare. June, July. 21.—Stem hairy, often prostrate. *Leaves* rather hastate. *Flowers* white, an inch long, on axillary peduncles; which are longer than the leaves.—This plant has been found on the banks of the canal near this city.

2. *C. sepium* Linn. : stem climbing, angular, twisted ; leaves sagittate, very acute, with the lobes truncate ; peduncles square, 1-flowered ; bracts large, cordate, close to the flower.—*Calystegia sepium* Brown.

HAB. Hedges and woods. Can. to Car. June, July. 2f.—Stem climbing or trailing, pubescent. Flowers large, white, on peduncles which are longer than the leaves. Great Bind-weed.

3. *C. panduratus* Linn. : stem climbing, pubescent ; leaves cordate, entire or lobed and panduriform ; peduncles long ; flowers in fascicles ; calyx smooth ; corol tubular-campanulate.

HAB. Sandy fields. N. Y. to Car. July. 2f.—Root very large and thick. Stems numerous, trailing. Peduncles 1—4. Flowers large, purple.—Found in Orange co., N. Y., by Dr. W. Horton, Jun. Medicinal. Man of the Earth.

4. *C. spithameus* Linn. : stem erect or trailing ; leaves oval or oblong, subcordate, pubescent, hoary ; peduncles 1-flowered, about as long as the leaves ; bracts much longer than the calyx.—*C. stans* Mich.—*Calystegia tomentosa* and *spithamea* Pursh.

HAB. Sandy woods. Can. and N. S. June. 2f.—Stem erect or spreading. Flowers white, on peduncles which are about as long as the leaves.

5. *C. purpureus* Linn. : stem twining and climbing ; leaves cordate, acuminate, undivided, entire ; peduncles 2—3-flowered ; pedicels thickened, nodding ; capsule smooth.—*Ipomœa purpurea* Pursh. Torr.

HAB. Fields, &c. July, Aug. ☉.—Stem hairy, climbing to a great height. Flowers large, blue, purple or nearly white. Introduced. Common Morning Glory.

6. *C. lacunosus* Spreng. : stem smooth ; leaves cordate, acuminate, angled at base ; peduncles short, generally 1-flowered ; calyx hairy ; corol tubular, short ; capsule hairy.—*Ipomœa lacunosa* Linn. Pursh. Torr.

HAB. Penn. Muhl. S. to Flor. Aug., Sept. ☉.—Flowers white with a purple rim.

7. *C. nil* Linn. : stem hairy, twining ; leaves cordate, 3-lobed ; peduncles short, 1—3-flowered ; calyx very villous ; segments acuminate, subulate ; corol funnel-form.—*Ipomœa nil* Pursh. Torr.

HAB. Penn. Muhl. S. to Car. Aug. ☉.—Flowers 1—2, on peduncles shorter than the petioles. Corol white at base, blue near the border. Morning Glory.

2. CUSCUTA. Linn.

Calyx 5- rarely 4-cleft. *Corol* globose-urceolate ; limb 4—5-cleft, marcescent. *Stamens* 4—5, inserted into the corol. *Stigmas* 2. *Capsule* 2-celled, opening all round transversely ; cells 2-seeded. *Pentandria. Digynia.*

1. *C. americana* Linn. : flowers in umbellate clusters, pedunculate,

5-cleft ; stigmas capitate ; corol tubular-bell-shaped, with the border small and spreading.

HAB. Low grounds. Can. to Car. W. to Miss. June, July.

☉.—*Stem* filiform, twining around other plants ; parasitic. *Flowers* small, white. *American Dodder.*

2. *C. europea* Linn. : flowers in sessile clusters ; corol 4—5-cleft, without scales at the base of the stamens ; stamens 4—5 ; stigmas simple.

HAB. Parasitic on flax, &c. Sch'y, N. Y. July. ☉.—*Stem* filiform, long and climbing, leafless. *Flowers* clustered, pale yellow or rose coloured. Introduced. *Dodder.*

ORDER LXXXIV. HYDROLEACEÆ. Kunth. Lind.

Calyx 5-parted, persistent ; æstivation imbricated. *Corol* regular, monopetalous, not always agreeing with the calyx in the number of its divisions. *Stamens* 5, inserted on the corol, equal ; *anthers* deeply lobed at the base, 2-celled. *Ovary* superior, surrounded by an annular disk, 2—3-celled ; *ovules* indefinite ; *styles* 2 or 3 ; *stigmas* thickened. *Fruit* capsular, 2—3 celled, splitting through the middle of the cells. *Seeds* indefinite, very small ; *embryo* straight in the axis of a fleshy *albumen* ; *radicle* next the hilum ; *cotyledons* flat.

Herbs, or *undershrubs*. *Leaves* alternate, entire or lobed, without stipules.

1. DIAPENSIA. Linn.

Calyx 5-parted, subtended by 3 bracts. *Corol* salverform ; border 5-cleft, flat. *Stamens* 5, from the summit of the tube, alternating with the segments of the corol. *Stigmas* 3. *Cap-sule* 3-celled, 3-valved, many-seeded.

Pentandria. Monogynia.

1. *D. lapponica* Linn. : cespitose ; leaves spatulate, smooth ; flower terminal, solitary, on short peduncles ; anthers simple.—*D. obtusifolia* Pursh.

HAB. Summits of the White Mountains, N. H. June. 2f.—*Stems* short, diffuse. *Leaves* crowded, fleshy, evergreen, very entire. *Flowers* white.

2. *D. barbulate* Ell. : leaves lanceolate-wedged-shaped, pubescent at base ; flower solitary, terminal, sessile ; anthers horizontal, beaked at base.—*D. cuneifolia* Pursh.—*Pyxidantha barbulate* Mich.

HAB. Pine barrens. N. J. to Car. May, June. 2f.—*Plant* small, creeping, forming dense mats ; branches assurgent, 1-flowered. *Upper leaves* crowded near the base of the flower which is small and white.—Very abundant in New-Jersey.

ORDER LXXXV. BORAGINEÆ. *Juss. Lind.*

Calyx 5-divided, persistent. *Corol* hypogynous, monopetalous, regular, 5-cleft; æstivation imbricate. *Stamens* inserted into the corol, alternate with its segments; *anthers* erect. *Ovary* 4-lobed, 4-celled; *ovules* 4, each suspended from the inner angle near the summit of the cell; *style* simple, arising from the base of the lobes of the ovary; *stigma* simple or bifid. *Nuts* 4, distinct. *Seed* separable from the pericarp, destitute of albumen; *embryo* with a superior *radicle*; *cotyledons* plano-convex.

Herbs or *shrubs* with round *stems*. *Leaves* alternate, scabrous, without stipules.

1. LITHOSPERMUM. *Linn.*

Calyx 5-parted. *Corol* funnel-form, small, 5-lobed. *Stamens* included. *Nuts* imperforate at base, shining, smooth or rugose. *Pentandria. Monogynia.*

1. *L. arvense* *Linn.*: stem erect, branched; leaves sessile, linear-lanceolate, rather acute, veinless, rough, hairy; calyx a little shorter than the corol; segments spreading; nuts rugose.

HAB. Fields. N. S. April, May. ☉.—*Plant* hispid-pilose. *Flowers* solitary, axillary, white. *Calyx* with the segments thrice as long as the fruit. Introduced. *Corn Gromwell.*

2. *L. officinale* *Linn.*: stem erect, much branched, covered with rigid hairs; leaves broad-lanceolate, acute, nerved, rough on the upper surface, hairy on the lower; tube of the corol as long as the calyx; nuts smooth.

HAB. Fields. N. S. May. 2℥.—*Stem* 1—2 feet high. *Flowers* axillary, pale yellow. *Nuts* whitish-brown, highly polished. Introduced. *Common Gromwell.*

3. *L. denticulatum* *Lehm.*: stem erect; leaves nerved, subglabrous, acute; margin scabrous, with minute teeth; radical ones ovate; those on the stem oblong; segments of the calyx denticulate on the margin.—*Pulmonaria sibirica* *Pursh. App.*

HAB. New-York. June. 2℥. *Muhl.*—*Stem* 6—10 inches high. *Peduncles* many-flowered. *Corol* purple.

4. *L. maritimum* *Lehm.*: very smooth; stem procumbent, branched; leaves ovate, obtuse, fleshy, glaucous.—*Pulmonaria maritima* *Linn.*

HAB. Sea shore. New-Eng. *Pursh.* N. to Subarc. Amer. July. 2℥.—*Stem* diffuse, much branched. *Lower leaves* on petioles, and acute; upper ones sessile. *Flowers* somewhat racemed, purplish-blue; tube short. *Seaside Gromwell.*

2. BATSCHIA. *Gmel.*

Calyx 5-parted. *Corol* salver-form, rather large; tube straight, much longer than the calyx, closed at the base by a bearded ring; orifice naked or partially closed; border orbiculate, nearly flat, segments rounded. *Nuts* shining.—*Flowers* yellow. *Pentandria. Monogynia.*

1. *B. canescens* Mich.: stem erect, simple, villous; leaves oblong, obtuse, slightly mucronate, silky above, subvillous beneath; flowers axillary, crowded near the top of the stem; tube of the corol as long again as the calyx.—*Anchusa canescens* Muhl.—*Lithospermum canescens* Lehm. Torr.

HAB. Hills. N. Y. to Virg. N. to Subarc. Amer. W. to Miss. June, July. 2f.—*Stem* 8—12 inches high. *Flowers* axillary, crowded near the top of the stem, bright orange.—Found near Fairfield, N. Y. by Prof. Hadley. Used by the Indians as a red dye. *Puccoon.*

2. *B. gmelini* Mich.: plant hirsute; stem simple; floral leaves ovate; those of the stem oblong; flowers in a terminal raceme; calyx with long lanceolate segments.—*Batschia caroliniensis* Gmel.—*Anchusa hirta* Muhl.

HAB. Woods. Penn. to Car. June, July. 2f.—*Stem* 8—12 inches high. *Flowers* in a terminal raceme, orange.

3. ONOSMODIUM. *Mich.*

Calyx deeply 5-parted; segments linear. *Corol* somewhat tubular-campanulate; border ventricose, half 5-cleft; segments connivent, acute. *Anthers* sessile, included. *Style* much exserted. *Nuts* imperforate, shining.

Pentandria. Monogynia.

1. *O. hispidum* Mich.: stem hispid, branched; leaves obovate-lanceolate, hairy, papillose-punctate; segments of the corol subulate.—*Lithospermum virginianum* Linn.—*Purshia hispida* Lehm.

HAB. Hills. N. Y. to Car. Aug. 2f.—*Stem* 1—2 feet high. *Flowers* white, in simple leafy secund racemes which at first are recurved and afterwards straight.

2. *O. molle* Mich.: whole plant white-villous; leaves oblong-oval, somewhat 3-nerved; segments of the corol semi-oval.—*Lithospermum molle* Muhl.—*Purshia mollis* Lehm.

HAB. N. Y. and Penn. S. W. to Tenn. July, Aug. 2f.—Differs from the former in its soft white pubescence, and in the broader segments of its corol. It has been found by Mr. George W. Clinton, in the sand plains near Albany.

4. SYMPHYTUM. *Linn.*

Calyx 5-parted. *Corol* ventricose, its orifice closed with connivent subulate scales. *Nuts* imperforate at base.

Pentandria. Monogynia.

S. officinale Linn. : stem hispid; radical leaves on long petioles, rough; those of the stem ovate-lanceolate below, lanceolate above, sessile, very decurrent and winging the upper part of the stem.

HAB. Springy grounds. N. Y. and Penn. June. 2f.—*Stem* 1—3 feet high, branched above. *Racemes* in pairs, secund, drooping. *Corol* large, yellowish-white.—Apparently native near Fairfield, N. Y. *Comfrey*.

5. ECHIUM. Linn.

Calyx 5-parted. *Corol* subcampanulate; tube very short; border broader, unequally and obliquely 5-lobed. *Nuts* imperforate at base, tuberculate. *Pentandria. Monogynia.*

E. vulgare Linn. : stem erect, bristly and tuberculate; leaves lanceolate, very hispid, radicle ones petiolate, spreading, very long; flowers in lateral spikes; stamens longer than the corol.

HAB. Hills. N. S. June, July. ♂.—*Stem* 2—3 feet high. *Flowers* large, blue, in lateral spikes, which are at first recurved but gradually become erect. Introduced. *Viper's Bugloss.*

6. LYCOPSIS. Linn.

Calyx 5-cleft. *Corol* funnel-form, with an incurved tube; orifice closed with convex connivent scales. *Nuts* perforate at the base. *Pentandria. Monogynia.*

L. arvensis Linn. : leaves lanceolate, repand-denticulate, very hispid; lower ones tapering into a petiole; upper ones sessile, subclasping; racemes leafy; calyx erect while in flower, shorter than the tube of the corol.—*Anchusa arvensis* Lehm.

HAB. Sandy fields. N. S. June, July. ♂.—*Stem* 12—18 inches high. *Flowers* bright blue, in a leafy raceme. Introduced. ? *Small Bugloss.*

7. MYOSOTIS. Linn.

Calyx 5-cleft. *Corol* salver-form; tube short; limb flat, with 5 emarginate lobes; orifice closed, with short connivent scales. *Nuts* smooth or scabrous. *Pentandria. Monogynia.*

1. *M. palustris* Roth. : leaves oblong-lanceolate, rough, with short mostly appressed hairs; racemes rather short; peduncles when in fruit divergent, twice as long as the 5-cleft spreading calyx; border of the corol expanded, longer than the tube.—*M. scorpioides* Willd.—*M. scorpioides* var. *palustris* Linn.

HAB. Ditches and wet grounds. Can. and N. S. May—July. 2f.—*Stem* 12—18 inches high. *Flowers* very small, bright blue, in second racemes.—Our plant differs from the foreign one, in having the flowers very small. *Marsh Scorpion Grass.*

2. *M. arvensis* Sibth. : leaves oblong-lanceolate, hairy; racemes very long; pedicels when in fruit spreading, twice as long as the 5-cleft

and closed calyx ; limb of the corol erect-spreading, about as long as the tube.—*M. scorpioides* var. *arcensis* Linn.—*M. verna* Nutt.

HAB. Sandy woods. Can. and N. S. W. to Miss. June. ☉.
—*Plant* gray, pubescent. *Stem* 4–10 inches high. *Flowers*
very small, white, on long pedicels. *Field Scorpion Grass.*

8. ECHINOSPERMUM. *Lehm.*

Calyx 5-parted. *Corol* salver-form, closed by connivent scales. *Nuts* fixed to a central column, echinate, compressed.

Pentandria. Monogynia.

1. *E. lappula* *Lehm.* : stem branched above ; leaves lanceolate or linear-lanceolate, hairy ; corol longer than the calyx ; border erect, spreading ; nuts with 2 rows of hooked prickles on the margin.—*Myosotis lappula* Linn.—*Rochelia lappula* R. & S. Torr.

HAB. Road sides. Can. and N. S. N. to Subarc. Amer. July.
☉ —*Stem* a foot high, branched above. *Flowers* minute, blue, erect when in fruit.

2. *E. virginicum* *Lehm.* : leaves oblong-lanceolate, acuminate, scabrous above ; racemes divaricate, dichotomous ; nuts densely covered with hooked prickles.—*Myosotis virginiana* Linn.—*Rochelia virginiana* R. & S. Torr.

HAB. Can. to Car. July. ♂.—*Stem* 2 feet high. *Leaves* very large. *Flowers* minute, pale blue, in dichotomous racemes.

9. CYNOGLOSSUM. *Linn.*

Calyx 5-parted. *Corol* short, funnel-form, 5-lobed ; orifice closed with convex connivent scales. *Nuts* depressed, affixed to the styles by their inner margin.

Pentandria. Monogynia.

1. *C. officinale* Linn. : leaves lanceolate, attenuate at the base, sessile, downy ; lower ones large, petiolate ; upper ones subclasping ; flowers in terminal racemes ; stamens shorter than the corol.

HAB. Road sides, &c. N. S. June, July. ♂.—*Plant* dull green, soft and downy, fetid. *Flowers* purplish-red. *Fruit* rough. Introduced. *Hound's Tongue.*

2. *C. virginicum* Linn. : leaves oval-oblong, acute, hairy ; lower ones long, petiolate ; upper ones cordate and clasping at the base ; corymb on a large almost naked panicle.—*C. amplexicaule* Mich.

HAB. Shady woods. N. Y. to Car. May. ♀.—*Stem* 2–3 feet high, very hispid. *Leaves* less hairy than in the former. *Flowers* in a small terminal corymb, blue.

10. PULMONARIA. *Linn.*

Calyx prismatic, 5-sided. *Corol* funnel-form, somewhat 5-lobed ; orifice naked. *Nuts* imperforate at base.

Pentandria. Monogynia.

P. virginica Linn.: smooth; stem erect; radical leaves obovate-oblong, obtuse; stem leaves narrower; flowers in terminal racemes or fascicles; calyx much shorter than the tube of the corol; segments lanceolate, acute.—*Lithospermum pulchrum* Lehm.

HAB. Wet grounds. N. Y. to Car. W. to Miss. May. 24.—
Stem 6—12 inches high. Leaves smooth and a little glaucous.
Flowers large, bright blue, in terminal racemes. Plant turning
black by drying. Lungwort.

ORDER LXXXVI. HYDROPHYLLEÆ. Lind.

Calyx 5—10-divided, persistent. *Corol* monopetalous, regular, or nearly so, 5-lobed, with 2 lamellæ towards the base of each constituent petal. *Stamens* alternate with the lobes of the corol; *anthers* ovate, 2-celled, versatile, bursting longitudinally. *Ovary* free, simple, 1-celled; *ovules* definite or indefinite, suspended; *style* terminal, bifid; *stigmas* 2. *Placentæ* 2, parietal, or on stalks from the base of the cavity. *Fruit* capsular, few, or many-seeded, invested with the permanent calyx. *Seeds* definite or indefinite; *embryo* taper, lying at the end of a copious cartilaginous *albumen*; *radicle* superior.

Hispid herbs. Leaves opposite, or alternate and lobed.

1. HYDROPHYLLUM. Linn.

Calyx 5-parted. *Corol* campanulate, 5-cleft, with 5 longitudinal margined melliferous grooves on the inside. *Stamens* 5, exserted; *filaments* bearded in the middle. *Stigma* bifid. *Capsule* globose, 1-celled, 2-valved, 1-seeded, 3 other seeds mostly abortive. *Pentandria. Monogynia.*

1. *H. virginicum* Linn.: stem nearly smooth; leaves pinnatifid and pinnate; segments oval-lanceolate, with deep serratures; clusters of flowers crowded; peduncles larger than the petioles.

HAB. Woods. Can. to Car. June. 24.—Stem 18 inches high.
Flowers white and blue, in compact lateral and axillary clusters.

Water-leaf.

2. *H. canadense* Linn.: somewhat hairy; leaves angularly sub-5-lobed, cordate at base; remotely serrate; flowers in crowded fascicles; peduncles shorter than the petioles.

HAB. Mountains. Can. and N. S. June. 24.—Stem 18 inches high. Leaves large and broad, somewhat palmate, about 5—7-lobed. Flowers blue and white, in clusters.

2. NEMOPHILA. Nutt.

Calyx 10-parted; alternate lobes reflexed. *Corol* subcam

panulate, 5-lobed ; the lobes emarginate, with margined nectariferous cavities at base. *Stamens* 5, shorter than the corol ; *filaments* naked. *Style* 2-cleft. *Capsule* fleshy, 1-celled, 2-valved, 4-seeded. *Pentandria. Monogynia.*

N. paniculata Spreng. : very hairy ; radical leaves subpinnatifid ; cauline ones angularly lobed ; sinuses of the calyx with minute oval appendages.—*Hydrophyllum appendiculatum* Mich.

HAB. Moist woods. Penn. and Virg. W. to Miss. May. ♂.
—*Stem* a foot high. *Flowers* blue, on short peduncles, somewhat paniculate.—Very properly separated from the preceding genus.—See Nutt. in Jour. Phil. Acad. ii. 179.

3. PHACELIA. Juss.

Calyx 5-parted. *Corol* subcampanulate, 5-cleft, with 5 longitudinal margined melliferous grooves on the inside. *Stamens* 5, exserted. *Style* filiform. *Stigmas* 2. *Capsule* 2-celled, 2-valved, 4-seeded, each of the valves septiferous in the centre. *Pentandria. Monogynia.*

1. *P. fimbriata* Mich. : whole plant hairy ; stem ascending ; leaves pinnatifid with undivided lobes ; flowers in a simple terminal raceme ; segments of the corol fimbriate.

HAB. Alluvial soil. Penn. to Geor. W. to Miss. May, June. 2ℓ. ?—*Stem* a foot high. *Flowers* blue, in a terminal raceme, at first revolute, afterwards erect.

2. *P. bipinnatifida* Mich. : stem erect, hairy ; leaves pinnatifid, segments incisely lobed ; racemes mostly bifid, oblong, many-flowered ; divisions of the corol entire.

HAB. Mountains. Penn. W. to Miss. May, June. 2ℓ. ?—*Stem* a foot high. *Flowers* blue, in terminal racemes.

3. *P. parviflora* Pursh : stem diffuse, pubescent ; leaves subsessile, pinnatifid ; segments oblong, rather obtuse, entire ; racemes solitary ; pedicels short ; segments of the corol round, very entire.—*Polemonium dubium* Willd.

HAB. Penn. May. ☉.—*Stem* 6—8 inches high. *Flowers* pale blue, much smaller than in the preceding.—May belong to a different genus.

ORDER LXXXVII. SOLANÆÆ. Juss. Lind.

Calyx 5- rarely 4-parted, persistent. *Corol* monopetalous, hypogynous ; limb 5- rarely 4-cleft, regular or somewhat unequal, deciduous ; æstivation plaited, or somewhat imbricate. *Stamens* inserted on the corol, alternate with its segments, sometimes 1 abortive ; *anthers* bursting longitudinally or by terminal pores. *Ovary* 2 or more celled ; *style* continuous ;

stigma obtuse, rarely lobed. *Fruit* either a capsule, which is 2—4-celled, 2—4-valved, with a double dissepiment, parallel with the valves, or a berry with the placentæ adhering to the dissepiment. *Seeds* numerous, sessile; *embryo* more or less curved, often eccentric, lying in fleshy *albumen*; *radicle* next the hilum.

Herbs or *shrubs*. — *Leaves* alternate.

DIV. I. *Fruit a berry.*

1. SOLANUM. Linn.

Calyx 5-cleft. *Corol* rotate, 5-cleft, spreading. *Anthers* 5, erect, connivent, opening with 2 pores at the extremity. *Berry* subglobose, 2- rarely 4-celled.

Pentandria. Monogynia.

1. *S. dulcamara* Linn.: stem fruticose, flexuous, without thorns, smooth or pubescent; leaves ovate-cordate, smooth; upper ones hastate; flowers in lateral clusters.

HAB. Low grounds. N. S. July, Aug. ♀.—*Stem* climbing. *Flowers* purple, with 2 green tubercles at the base of each segment. *Berries* red, oval. *Woody Night-shade. Bitter-sweet.*

2. *S. nigrum* var. *virginianum* Linn.: stem herbaceous, without thorns, angular, toothed; leaves ovate, obtusely toothed and waved; flowers subumbelled.—*S. nigrum* Big.

HAB. Old fields. Can. to Car. July, Aug. ♂.—*Stem* erect, 2—3 feet high, angles roughened. *Flowers* nodding, white, 3—6 in an umbel. *Berries* spherical, black, 2-celled.

Common Night-shade.

3. *S. carolinense* Linn.: stem annual, aculeate; leaves ovate-oblong, tomentose, hastate-angled, prickly on both sides; raceme simple, lax; berries globose.

HAB. Road sides, &c. Penn. to Car. W. to Miss. June. 2f. —*Stem* erect, branched, a foot high, armed with sharp prickles. *Flowers* white, in lateral racemes. *Berries* yellowish.

Horse Nettle.

2. PHYSALIS. Linn.

Calyx 5-cleft. *Corol* rotate, 5-cleft. *Anthers* 5, oblong, erect, connivent. *Berry* globose, covered by the inflated calyx.

Pentandria. Monogynia.

1. *P. viscosa* Linn.: leaves in pairs, subcordate-oval, repand, obtuse, subtomentose, a little viscous; stem herbaceous, paniculate above; fruit bearing calyx pubescent.

HAB. Road sides. N. Y. to Car. W. to Miss. July, Aug. 24.
—Stem 2—3 feet high. Flowers yellow. Berries viscous.

Ground Cherry.

2. *P. obscura* Mich.: pubescent; stem prostrate, divaricate; leaves broad-cordate, subsolitary, unequally and coarsely toothed; flower solitary, nodding; calyx very hairy.—*P. pruinosa* Ell.?

HAB. Hills. Penn. to Car. Pursh. Aug. ☉.—Flowers pale yellow, with 5 purple spots at base. Anthers bluish.

3. *P. lanceolata* Mich.: stem erect, densely pubescent; leaves mostly in pairs, oval-lanceolate, very entire, narrowed at the base into a petiole; flower solitary, nodding; calyx villous.

HAB. Penn. Muhl. S. to Car. July. 24.—Stem 1—2 feet high. Flowers pale yellow.

4. *P. pennsylvanica* Linn.: stem herbaceous, branched; leaves ovate, somewhat repand, obtuse, nearly naked; peduncles axillary, solitary, a little longer than the petioles.

HAB. Road sides. Penn. to Car. July—Sept. 24.—Stem a foot high. Flowers yellow. Berries red.

3. NICANDRA. Adams.

Calyx 5-parted, 5-angled, the angles compressed, segments sagittate. *Corol* campanulate. *Stamens* incurved. *Berry* 3—5-celled, covered by the calyx. *Pentandria. Monogynia.*

N. physaloides Pers.: stem herbaceous; leaves sinuate, angled, glabrous; flowers solitary, axillary, on short peduncles; calyx closed, with the angles very acute.—*Atropa physaloides* Linn.

HAB. Cultivated grounds. N. Y. to Car. July, Aug. ☉.—Stem 2—3 feet high, much branched. Leaves alternate. Flowers solitary, axillary, on short peduncles, pale blue. Introduced.

Div. II. Fruit a capsule.

4. NICOTIANA. Linn.

Calyx urceolate, 5-cleft. *Corol* funnel-form, 5-cleft, regular. *Stamens* 5. *Stigma* emarginate, *Capsule* 2-valved.

Pentandria. Monogynia.

N. rustica Linn.: plant viscid-pubescent; stem terete; leaves petioled, ovate, very entire; tube of the corol cylindrical, longer than the calyx; segments round.

HAB. Western part of New-York. Nutt. ☉.—Stem 12—18 inches high. Flowers greenish-yellow, in a terminal panicle or raceme.—According to Mr. Nuttall it has been introduced by the Indians. Tobacco.

5. DATURA. Linn.

Calyx large, tubular, ventricose, 5-angled, deciduous; the

base orbicular, peltate and persistent. *Corol* funnel-form, with the tube long; the limb 5-angled and plaited. *Stamens* 5. *Stigma* bilamellate. *Capsule* smooth or echinate, 2-celled; cells 2—3-parted. *Pentandria. Monogynia.*

D. stramonium Linn.: stem dichotomously branched; leaves ovate, smooth, angular-dentate, somewhat cordate; capsule spiny, erect.

b. tatula Torr.: stem and flowers purple.—*D. tatula* Linn.

HAB. Waste grounds, &c. Throughout the U. S. July—Sept.

☉.—*Stem* 2—6 feet high. *Flowers* solitary, large, blue and white, on peduncles. Very fetid. Medicinal and poisonous.

Big. Med. Bot. i. 16. Jamestown Weed. Thorn-apple.

6. HYOSCYAMUS. Linn.

Calyx tubular, 5-cleft. *Corol* funnel-form, irregular, lobes obtuse. *Stamens* 5. *Stigma* capitate. *Capsule* ovate, operculate at the extremity. *Pentandria. Monogynia.*

H. niger Linn.: hispidly pilose and fetid; stem erect, very leafy; leaves sinuate, clasping; flowers sessile, arranged in terminal recurved leafy spikes; corol reticulate.

HAB. Waste places. N. Y. and Penn. June. ☉ or ♂.—*Stem*

12—18 inches high. *Flowers* large, dull yellow, with purple veins.—Introduced? Fetid, poisonous and medicinal.

Henbane.

7. VERBASCUM. Linn.

Calyx 5-parted. *Corol* rotate, 5-lobed, unequal. *Stamens* 5, declined, often hairy. *Capsule* 2-valved, ovate or globose. *Pentandria. Monogynia.*

1. *V. thapsus* Linn.: stem simple, erect, tomentose; leaves ovate-oblong, decurrent, very woolly on both sides; flowers in a long dense terminal spike; stamens unequal, two smooth.

HAB. Road sides, &c. Throughout the U. S. June. ♂.—

Stem 3—6 feet high, angular, winged. *Flowers* yellow, in a long dense cylindrical spike. Introduced? *Mullein.*

2. *V. blattaria* Linn.: stem angled, smooth; leaves clasping, oblong, serrate; flowers in a terminal raceme; peduncles 1-flowered, solitary.

HAB. Road sides. N. Y. to Car. June, July. ♂.—*Stem* 2 feet high. *Flowers* white and yellow.—Considered by some as distinct varieties.

3. *V. lychnitis* Linn.: leaves oblong-cuneiform, naked above, white-tomentose beneath; stem angular, paniced; spikes lax, lateral and terminal.

HAB. Penn. Pursh. S. to Car. June, July. ♂.—*Stem* straight

and angled. *Leaves* very white beneath. *Flowers* pale yellow, clustered, on short peduncles.

ORDER LXXXVIII: OROBANCHEÆ. *Juss. Lind.*

Calyx divided, persistent. *Corol* irregular, usually bilabiate, persistent; æstivation imbricated. *Stamens* 4, didynamous. *Ovary* superior, seated in a fleshy disk, with 2—4-parietal many-seeded placentæ; *style* 1; *stigma* 2-lobed. *Fruit* capsular, inclosed within the withered corol, 1-celled, 2-valved, each valve bearing 1 or 2 placentæ in the middle. *Seeds* indefinite, minute; *embryo* very minute, inverted at the apex of a fleshy albumen.

Herbs growing parasitically upon the roots of other species. *Stems* covered with brown or colourless scales.

1. OROBANCHE. *Linn.*

Calyx 4—5-cleft; segments often unequal. *Corol* ringent. *Capsule* ovate, acute, 1-celled, 2-valved. *Seeds* numerous. A *gland* beneath the base of the germ.

Didynamia. Angiospermia.

1. *O. americana* *Linn.*: stem very simple, covered with ovate-lanceolate imbricate scales; spike terminal, smooth; corol recurved; stamens exserted.

HAB. Woods. Car. to Geor. July. 2l.—*Stem* 6—8 inches high, thick, leafless, scaly. *Flowers* in a terminal spike covered by the scales of the stem, brownish-yellow. Parasitic.

Cancer-root.

2. *O. uniflora* *Linn.*: stem very short; peduncles elongated, scapiform, 1-flowered, naked; scales smooth, concave; lobes of the corol oblong-oval, with a pubescent coloured margin.

HAB. Woods. Can. to Car. W. to Miss. May—July. 2l.—*Peduncles* 4—6 inches long, subpubescent. *Flowers* recurved, bluish-white.—Parasitic.

2. EPIPHAGUS. *Nutt.*

Polygamous. *Calyx* abbreviated, 5-toothed. *Corol* of the sterile flower ringent, compressed, 4-cleft, lower lip flat; of the fertile flower minute 4-toothed, deciduous. *Capsule* truncate, oblique, 1-celled, imperfectly 2-valved, opening only on one side.

Didynamia. Angiospermia.

E. americanus *Nutt.*—*Orobanche virginiana* *Linn.*

HAB. Woods. Can. to Car. July—Sept. 2l.—*Stem* a foot high, branched, leafless, with small ovate scales. *Flowers* alter-

nate, distinct, small ; fertile ones deciduous ; sterile ones larger, white striped with purple.—Parasitic. *Beech-drops.*

ORDER LXXXIX. SCROPHULARINEÆ. *Juss. Lind.*

Calyx divided, unequal, persistent. *Corol* usually irregular and bilabiate, or personate, deciduous ; æstivation imbricate. *Stamens* usually 4, didynamous, rarely equal, sometimes 2. *Ovary* free, 2-celled ; *ovules* definite or indefinite ; *style* simple ; *stigma* 2-lobed, rarely entire. *Fruit* capsular, rarely fleshy, 2- rarely 1-celled, 2—4-valved ; the valves entire or bifid, with a dissepiment either double from the inflexed margin of the valves, or simple parallel and entire, or opposite and bipartible. *Placenta* central, either adhering to the dissepiment or separating from it. *Seeds* indefinite ; *embryo* straight, included within a fleshy albumen.

Herbs, seldom *shrubs*. *Leaves* usually opposite.

DIV. I. VERONICEÆ.

1. VERONICA. *Linn.*

Calyx 4- rarely 5-parted. *Corol* subrotate, 4-lobed, unequal, the lower segments narrower. *Stamens* 2, antheriferous, sterile ones none. *Capsule* 2-celled, obcordate. *Seeds* few. *Diandria. Monogynia.*

* *Spikes or racemes terminal.*

1. *V. serpyllifolia* *Linn.* : racemes spiked, many-flowered ; leaves ovate, slightly crenate ; capsule broadly obcordate.

HAB. Meadows, &c. Throughout the U. S. May to Aug. 2f.

—*Stems* procumbent, 3—5 inches long, sometimes creeping.

Flowers small, pale blue, in a long spike or raceme. Introduced.

Thyme-leaved Speedwell.

** *Spikes or racemes axillary.*

2. *V. scutellata* *Linn.* : racemes alternate ; pedicels divaricate ; leaves linear, dentate-serrate.

HAB. Moist places. N. S. W. to Miss. May. 2f.—*Stem* erect,

weak, 6—12 inches high. *Flowers* flesh-coloured, in simple rarely compound racemes. Introduced. *Scull-cap Speedwell.*

3. *V. anagallis* *Linn.* : racemes opposite ; leaves lanceolate, serrate ; stem erect.

HAB. Ditches and moist places. Can. to Car. June—Aug.

2f.—*Stem* 1—2 feet high, succulent. *Leaves* varying in width.

Flowers blue, in long racemes. *Pedicels* shorter than in the preceding, but never deflexed. *Water Speedwell.*

4. *V. beccalunga* Linn.: racemes opposite; leaves elliptical, obtuse, subserrate, glabrous, on short petioles; stem procumbent, rooting at base.

HAB. Ditches, &c. N. S. June. 2f.—Whole plant smooth and shining. Racemes many-flowered, longer than the leaves. Flowers bright blue. Brooklime.

5. *V. officinalis* Linn.: flowers in spikes; leaves ovate or obovate, serrate, shortly petiolate, rough, pubescent; stem procumbent, rough.

HAB. Pastures and dry woods. Can. to Car. June. 2f.—Stems 6—12 inches long, rooting below. Flowers pale blue, in erect pedunculate spikes. Common Speedwell.

*** Flowers axillary, solitary.

6. *V. agrestis* Linn.: flowers peduncled; leaves on short petioles, cordate-ovate, deeply serrate; segments of the calyx ovate-lanceolate; stem procumbent.

HAB. Sandy fields. Can. to Car. May. ☉.—Stems 3—9 inches long, hairy. Peduncles rather longer than the leaves and recurved when in fruit. Flowers small, pale blue or whitish. Introduced.

7. *V. peregrina* Linn.: flowers solitary, sessile; leaves oblong, serrate, rather obtuse; stem erect.—*V. caroliniana* Walt.—*V. marilandica* Mich.

HAB. Clay grounds. Arctic Amer. to Car. W. to Miss. May. July. ☉.—Whole plant smooth. Stem simple, or branched only at base. Flowers very small, white or pale blue, nearly or quite sessile.

8. *V. arvensis* Linn.: flowers subsessile; leaves cordate-ovate, deeply serrate, floral ones lanceolate; segments of the calyx lanceolate; stem nearly erect.

HAB. Fields, &c. Penn. to Car. April—July. ☉.—Stem somewhat branched at base. Flowers nearly sessile, very small, pale blue. Capsule compressed and ciliate. Introduced.

Small Speedwell.

9. *V. hederifolia* Linn.: leaves cordate-ovate, mostly 5-lobed, petioled; segments of the calyx cordate, ciliate, acute; stem procumbent.

HAB. Shady rocks. N. S. April. ☉.—Stems weak and unbranched. Corol pale blue, smaller than the calyx. Capsule 2-lobed, turgid.

10. *V. reniformis* Raf.: stem procumbent, hispid; leaves sessile, reniform, entire, hairy, villous; flowers axillary, solitary, subsessile.

HAB. Sandy soils. N. J. Raf. May—July. ☉.—Stems few, terete, procumbent. Flowers white or pale blue.—It should not be confounded with *V. reniformis* of Pursh. It may be only a variety of *V. arvensis*.

2. LEPTANDRA. Nutt.

Calyx 5-parted; segments acuminate. Corol tubular-

campanulate; border 4-lobed, a little ringent, the lower segment narrower. *Stamens* 2, and with the *pistil* at length much exserted. *Capsule* ovate, acuminate, 2-celled, many-seeded, opening at the summit. *Diandria. Monogynia.*

L. virginica Nutt.: leaves whorled in fours or fives, lanceolate, serrate, petiolate.—*Veronica virginica* Linn.—*Callistachya virginica* Raf.

HAB. Woods. Can. to Car. W. to Miss. July, Aug. 24.—*Stem* angular, 2—4 feet high, smooth, simple. *Leaves* in whorls, slightly pubescent beneath. *Flowers* white, in long dense terminal spikes.

DIV. II. ERINACEÆ.

3. BUCHNERA. Linn.

Calyx 5-toothed. *Corol* with the tube slender; border 5-cleft and nearly equal; lobes cordate. *Capsule* 2-celled.

Didynamia. Angiospermia.

B. americana Linn.: stem simple; leaves lanceolate, subdentate, rough, 3-nerved; spikes with the flowers remote.

HAB. Sandy places. N. Y. to Car. W. to Miss. July. 24.—*Stem* 12—18 inches high. *Leaves* opposite, sessile. *Flowers* blue.—Plant blackens by drying. *Blue Hearts.*

DIV. III. SCROPHULARIÆ.

4. SCROPHULARIA. Linn.

Calyx 5-cleft. *Corol* subglobose; limb contracted, shortly 2-lipped; upper *lip* 2-lobed (with a scale or abortive stamen frequently within); lower 3-lobed. *Capsule* 2-celled.

Didynamia. Angiospermia.

1. *S. marylandica* Linn.: leaves cordate, serrate, acute, rounded at the base; petioles fringed near the base; branches of the panicle composed of loosely flowered clusters.—*S. nodosa* var. *americana* Mich.

HAB. Low grounds. Can. to Car. W. to Miss. June, July. 24.—*Stem* 3—4 feet high, much branched. *Leaves* opposite. *Flowers* greenish-brown, small, in an erect compound terminal panicle. *Capsule* globular. *Figwort.*

2. *S. lanceolata* Pursh: leaves lanceolate, unequally and incisely serrate, acute at the base; petioles naked; fascicles of the panicle corymbd.

HAB. Wet meadows. N. S. Aug. 24.—*Stem* 2—3 feet high. *Flowers* greenish-yellow.

5. ANTIRRHINUM. Linn.

Calyx 5-parted. *Corol* personate, with a deflexed promi-

nence or spur at the base. *Capsule* 2-celled, opening at the extremity with minute valves. *Didynamia. Angiospermia.*

1. *A. elatine* Linn. : procumbent, hairy ; leaves alternate, hastate, very entire ; peduncles solitary, axillary, very long.

HAB. Sandy fields. N. Y. to Virg. July. ☉.—*Stem* 1—2 feet long. *Flowers* small, bluish-white. Introduced. ?

2. *A. linaria* Linn. : stem erect ; leaves linear-lanceolate, scattered, crowded ; spikes terminal ; flowers imbricate ; calyx smooth, shorter than the spur.

HAB. Road sides. N. S. June—Oct. 2f.—*Stems* 1—2 feet high. *Flowers* large, yellow, in long spikes. Introduced. ?

Snap-dragon. Toad Flax.

3. *A. canadense* Linn. : assurgent, smooth, mostly simple ; leaves scattered, erect, linear, obtuse ; flowers in racemes ; suckers (or sterile branches) procumbent.

HAB. Low grounds. Can. to Car. June—Aug. ☉.—*Stem* 6—12 inches high, slender. *Flowers* very small, blue, in a terminal raceme. *Flax Snap-dragon.*

6. MIMULUS. Linn.

Calyx prismatic, 5-toothed. *Corol* ringent ; upper lip reflexed at the sides ; palate of the lower lip prominent. *Stigma* thick, bifid. *Capsule* 2-celled, many-seeded. *Seeds* minute.

Didynamia. Angiospermia.

1. *M. ringens* Linn. : erect, smooth ; leaves sessile, lanceolate, acuminate, serrate ; peduncles axillary, opposite, longer than the flower ; teeth of the calyx oblong, acuminate.

HAB. Wet grounds. Can. to Car. W. to Miss. Aug. 2f.—*Stem* 2 feet high, angular. *Flowers* large, pale purple.

Monkey Flower.

2. *M. alatus* Linn. : erect, smooth ; leaves petioled, ovate, acuminate, serrate ; peduncles axillary, opposite, shorter than the flower ; teeth of the calyx round, mucronate ; stem square, winged.

HAB. Wet meadows. N. Y. to Car. Aug. 2f.—*Stem* 2 feet high, winged. *Flowers* pale blue.—Abundant in the western part of New-York. Distinguished from the former by its larger and petiolate leaves and winged stem.

7. GRATIOLA. Linn.

Calyx 5-parted, often with 2 bracts at the base. *Corol* tubular, sub-bilabiate ; upper lip emarginate ; lower 3-lobed. *Stamens* 4, 2 sterile. *Stigma* 2-lobed. *Capsule* ovate, 2-celled, 2-valved. *Diandria. Monogynia.*

1. *G. aurea* Muhl. : smooth ; leaves linear-oblong, subclasping, obscurely toothed ; segments of the calyx equal ; sterile filaments minute.—*G. officinalis* Mich.—*G. caroliniensis* Pers.

HAB. Sandy swamps, N. Y. to Car. Aug. 2f.—*Stem* 1—2 feet long, rooting at base. *Flowers* bright yellow, on axillary peduncles. *Hedge Hyssop*.

2. *G. virginica* Linn.: stem pubescent, assurgent, terete; leaves smooth, lanceolate, sparingly dentate-serrate, attenuate and connate at the base; segments of the calyx equal.

HAB. Inundated meadows. Can. to Car. W. to Miss. July, Aug. 2f.—*Stem* 6 inches high, branched at base. *Peduncles* shorter or longer than the leaves; upper ones opposite. *Flowers* yellowish-white.

3. *G. megalocarpa* Ell.: leaves lanceolate, serrate, pubescent; peduncles opposite, longer than the leaves; segments of the calyx linear, as long as the globose capsule.—*G. acuminata* Pursh. (excl. syn.)

HAB. Ditches and pools. Penn. to Car. July—Aug. 2f.—*Flowers* pale-yellow, large. *Capsule* larger than in any other species.

8. LINDERNIA. Linn.

Calyx 5-parted. *Corol* tubular, ringent; upper lip short, emarginate; lower one trifid, unequal. *Filaments* 4; 2 longer, forked and sterile. *Stigma* emarginate. *Capsule* 2-celled, 2-valved; dissepiment parallel with the valves.

Diandria. Monogynia.

1. *L. dilatata* Muhl.: leaves dilated at the base, clasping, remotely toothed; peduncles longer than the leaves.—*L. pyxidaria* Pursh.—*Gratiola anagalloidea* Mich.

HAB. Inundated banks. N. Y. to Car. July, Aug. ☉.—*Stem* 6 inches high, 4-sided; smooth. *Flowers* pale purple, on alternate and opposite peduncles.

2. *L. attenuata* Muhl.: leaves lanceolate and obovate, narrowed at the base; peduncles shorter than the leaves, erect.—*L. pyxidaria* var. *major* Pursh.

HAB. Inundated banks. N. Y. to Car. July—Sept. ☉.—*Stem* erect or procumbent. *Peduncles* shorter or nearly as long as the leaves.

3. *L. monticola* Muhl.: stem slender, dichotomous; radical leaves spatulate; cauline ones linear, small and remote; peduncles very long, at length deflected.

HAB. White Hills, N. H. June. 2f.—*Stem* erect, 4—6 inches high. *Radical leaves* obscurely toothed, punctate; cauline ones very few. *Flowers* pale blue.

9. SCHWALBEA. Linn.

Calyx ventricose, tubular, obliquely 4-cleft; upper segment shortest; the lower large, emarginate or bidentate. *Corol* bilabiate; upper lip entire, arched; the lower 3-lobed. *Capsule* ovate-roundish, 2-celled, 2-valved; dissepiment produced by the inflected margin of the valves, and parallel with

the longitudinal receptacle. *Seeds* numerous, imbricated, linear and winged. *Didynamia. Angiospermia.*

S. americana Linn.

HAB. Pine barrens. N. J. to Car. Aug., Sept. 24.—*Stem* 12—18 inches high, simple, pubescent. *Leaves* alternate, lanceolate, entire, somewhat 3-nerved. *Flowers* in a terminal raceme, alternate, subsessile, dark purple.

10. CHELONE. Linn.

Calyx 5-parted, with 3 bracts. *Corol* ringent, ventricose. *Sterile filaments* shorter than the rest; *anthers* woolly. *Capsule* 2-celled, 2-valved. *Seeds* membranaceously margined.

Didynamia. Angiospermia.

C. glabra Linn.: smooth; leaves opposite, oblong, lanceolate, acuminate, serrate; flowers in dense spikes.

HAB. Wet grounds. Can. to Car. Aug.—Oct. 24.—*Stem* 2 feet high, simple. *Flowers* large, white or reddish, in a compact terminal spike. *Snake-head.*

11. PENTSTEMON. Linn.

Calyx 5-leaved. *Corol* bilabiate, ventricose. The *fifth* sterile filament longer than the rest and bearded on the upper side. *Anthers* smooth. *Capsule* ovate, 2-celled, 2-valved. *Seeds* numerous, angular. *Didynamia. Angiospermia.*

1. *P. laevigatum* Linn.: smooth; leaves ovate-oblong, clasping at base, slightly toothed, the lower ones entire; flowers paniculate; sterile filament bearded near the top.—*Chelone pentstemon* Wall.

HAB. Low grounds. Penn. to Car. June. 24.—*Stem* 1—2 feet high. *Flowers* in terminal panicles.

2. *P. pubescens* Linn.: stem pubescent; leaves serrulate, lanceolate-oblong, sessile, clasping; flowers in panicles; sterile filament bearded from the top below the middle.

HAB. Hill sides. Can. to Geor. W. to Miss. June. 24.—*Stem* 18 inches high. *Flowers* pale purple, in terminal panicles.

12. HERPESTIS. Gaert.

Calyx 5-cleft, unequal, bibractate at base. *Corol* tubular, sub-bilabiate. *Stamens* included, all fertile. *Capsule* 2-celled, 2-valved; dissepiment parallel to the valves.

Didynamia. Angiospermia.

H. cuneifolia Pursh: very smooth; leaves cuneate-obovate, obscurely crenate near the summit; peduncles as long as the leaves; corol 5-cleft—*Monniera cuneifolia* Mich.

HAB. Inundated banks. Penn. to Car. Aug. 24.—*Stem* pros-

trate, creeping. *Leaves* opposite, thick, somewhat clasping. *Flowers* very small, pale purple, solitary, axillary.

13. HEMIANTHUS. Nutt.

Calyx tubular, cleft on the under side; border 4-toothed. *Corol* with the upper lip obsolete; the lower 3-parted; intermediate segment ligulate and truncate, much longer, closely incurved. *Stamens* 2; filaments bifid, lateral fork antheriferous. *Style* bifid. *Capsule* 1-celled, 2-valved, many-seeded.

Diandria. Monogynia.

H. micranthemoides Nutt.—*Herpestis micrantha* Pursh. (excl. syn.)

HAB. Inundated banks. Del. Aug.; Sept. ☉.—*Stem* creeping, dichotomous. *Leaves* opposite, crowded, sessile, obscurely 3-nerved. *Flowers* axillary, solitary, minute.

14. COLLINSIA. Nutt.

Calyx 5-cleft. *Corol* bilabiate, orifice closed; upper lip bifid; the lower trifid; intermediate segment carinately saccate and closed over the declinate style and stamens. *Capsule* globose, partly 1-celled and imperfectly 4-valved. *Seeds* 2—3, umbilicate.

Didynamia. Angiospermia.

C. verna Nutt.: leaves ovate-oblong, sessile, obtuse, the lower ones attenuated into a long petiole; peduncles axillary, long.

HAB. Banks of streams. N. Y. W. to Miss. July. ☉.—*Stem* a foot high. *Leaves* opposite. *Peduncles* axillary, 1-flowered. *Flowers* particoloured.—Very abundant about Utica, N. Y. Gray.

15. LIMOSELLA. Linn.

Calyx 5-cleft. *Corol* shortly campanulate, 5-cleft, equal. *Stamens* approximating by pairs. *Capsule* 2-valved, sub-bilocular, many seeded.

Dydynamia. Angiospermia.

L. subulata Ives: leaves linear, very narrow, scarcely dilated at the apex; scape 1-flowered, as long as the leaves.

HAB. Muddy shores. N. S. Aug. 24.—*Stem* an inch high. *Flowers* very small, bluish-white. *Mudwort.*

16. GERARDIA. Linn.

Calyx half 5-cleft or 5-toothed. *Corol* subcampanulate, unequally 5-lobed; segments mostly rounded. *Capsule* 2-celled, opening at the summit.

Didynamia. Angiospermia.

* *Flowers* purple.

1. *G. purpurea* Linn.: stem angular, much branched; leaves linear, long, acute at each end, very scabrous; flowers nearly sessile; teeth of the calyx subulate, short, acute.

HAB. Fields and woods. N. Y. to Car. Aug.—Oct. ☉.—Stem 1—2 feet high, slender, much branched. Flowers large, axillary, purple.

2. *G. tenuifolia* Linn. : stem much branched, smooth; leaves linear, acute at each end, smooth, rough; peduncles axillary, opposite, longer than the flowers; teeth of the calyx, small, acute.—*G. erecta* Walt.

HAB. Fields and woods. N. Y. to Car. W. to Miss. July—Sept. ☉.—Stem 6—10 inches high, much branched. Flowers small, purple.—Differs from the former in its corol and peduncle.

3. *G. maritima* Raf. : stem angular; leaves linear, fleshy, short, rather obtuse; flowers pedunculate; upper segments of the corol ciliate; calyx truncate, with minute teeth.—*G. purpurea* var. *crassifolia* Pursh.

HAB. Salt marshes. N. S. July—Sept. ☉.—Stem 6—12 inches high. Flowers middle-sized, purple, axillary and terminal.—Easily distinguished by its truncate calyx.

3. *G. auriculata* Mich. : subsimple, scabrous; leaves ovate, lanceolate, auriculate at the base, very entire, sessile; flowers sessile, axillary.

HAB. Rocky fields. Penn. W. to Ill. Aug. ☉.—Stem 8—12 inches high. Flowers middle-sized.

** Flowers yellow.

5. *G. flava* Linn. : pubescent; stem mostly simple; leaves lanceolate, entire or toothed, the lower ones notched and pinnatifid; flowers axillary, opposite, nearly sessile.

HAB. Rocky woods. N. Y. to Flor. W. to Miss. Aug.—Sept. ☉.—Stem 2—3 feet high. Flowers large, yellow. False Foxglove.

6. *G. glauca* Eddy : smooth; stem panicled; leaves petioled, pinnatifid, paler beneath; the upper ones lanceolate; flowers axillary, opposite, on pedicels.—*G. quercifolia* Pursh.

HAB. Woods. N. Y. to Car. W. to Miss. Aug., Sept. ☉.—Stem 3—5 feet high. Flowers large, yellow.—Resembles the preceding, but has the stem smooth and more branched, the leaves petioled and pinnatifid, and the flowers on pedicels.

7. *G. pedicularia* Linn. : stem much branched, villous; leaves oblong, smoothish, pinnatifid; segments uncinat, serrate; flowers axillary, opposite, on pedicels; segments of the calyx leafy, notched and toothed.

HAB. Woods. Can. to Car. July, Aug. ☉.—Stem 2—3 feet high, much branched. Flowers large, villous on the outside.—Liable to much variation.

DIV. IV. RHINANTHÆ.

17. RHINANTHUS. Linn.

Calyx inflated, 4-toothed. *Corol* ringent; upper lip com-

pressed ; lower one flat, 3-lobed. *Capsule* 2-celled, obtuse, compressed. *Didynamia. Angiospermia.*

R. crista galli Linn. : upper lip of the corol arched ; calyx smooth ; leaves lanceolate, serrate.

HAB. Meadows. Arc. Amer. Can. N. Y. and Mass. June, July. ☉.—*Stem* a foot high, branching. *Leaves* opposite, cordate, lanceolate. *Flowers* axillary, but somewhat spiked, yellow. *Calyx* becoming very large after flowering. *Yellow Rattle.*

18. PEDICULARIS. Linn.

Calyx ventricose, half 5-cleft. *Corol* with the upper lip emarginate and compressed. *Capsule* 2-celled, mucronate, oblique. *Seeds* angular, coated.

Didynamia. Angiospermia.

1. *P. pallida* Pursh : stem smooth, branched, with pubescent lines ; leaves subopposite, lanceolate, pinnatifid, toothed and crenate, scabrous on the margin ; helmet of the corol truncated at the apex ; calyx bifid with round segments—and *P. lanceolata* Mich.

HAB. Low grounds. N. Y. to Virg. W. to Miss. Sept. 24. —*Stem* 1—2 feet high. *Flowers* large, straw yellow. *Capsule* short and broad-ovate.

2. *P. canadensis* Linn. : stem simple ; leaves pinnatifid, notched and toothed ; spike leafy at the base, hairy ; helmet of the corol with 2 setaceous teeth ; calyx obliquely truncate.

HAB. Meadows. Can. to Car. W. to Miss. May—July. 24. —*Stem* 8—10 inches high. *Flowers* yellow and purple, in a short terminal spike. *Louse-wort.*

3. *P. gladiata* Mich. : stem simple ; leaves lanceolate, pinnatifid, toothed ; spikes leafy, hairy, with the flowers alternate ; capsule terminating in a long flat point.

HAB. Wet meadows. N. Y. to Virg. May, June. 24.—*Stem* a foot high. *Flowers* yellow and purple.

19. EUPHRASIA. Linn.

Calyx tubular, 4-cleft. *Corol* bilabiate ; upper lip bifid ; lower one of 3 notched lobes. *Anthers* with their lobes mucronate at base. *Capsule* ovate-oblong, 2-celled. *Seeds* striate. *Didynamia. Angiospermia.*

E. officinalis Linn. : leaves ovate, deeply toothed, furrowed ; flowers axillary towards the summit ; calyx 4-toothed, hairy ; segments of the lower lip of the corol emarginate.

HAB. Can. Mich. Arctic Amer. Rich. July—Sept. ☉.—*Flowers* white, with purple veins. *Eye-bright.*

20. BARTSIA. Linn.

Calyx 4-cleft, mostly coloured. *Corol* ringent, with a contracted orifice; upper lip concave, longest, entire; lower one in 3 equal reflexed lobes. *Capsule* ovate, compressed, 2-celled, many-seeded. *Seeds* angular.

Didynamia. Angiospermia.

B. pallida Mich.: leaves alternate, linear, undivided, 3-nerved; upper ones lanceolate; floral ones sulcate, toothed at the end; teeth of the calyx entire, acute.

HAB. Mountains. N. H. Can. and Labrador. Aug. 21.—*Stem* 12 inches high. *Flowers* yellow, pubescent; floral ones purple.—Sprengel has removed this species to the genus *Castelleja* of Mutis.

21. EUCHROMA. Nutt.

Calyx ventricose, 2—4-cleft. *Corol* bilabiate; upper lip very long and linear, embracing the style and stamens; lower lip short and trifid, without glands. *Anthers* linear, with unequal lobes, all cohering in the form of an oblong disk. *Capsule* compressed, ovate, oblique, 2-celled, 2-valved. *Seeds* numerous, small, surrounded by a membranaceous inflated vesicle.

Didynamia. Angiospermia.

E. coccinea Nutt.: leaves and coloured bracts pinnatifidly 3-cleft; segments divaricate; calyx 2-cleft, nearly as long as the corol; segments retuse and emarginate.—*Bartsia coccinea* Linn.

HAB. Wet grounds. Can. to Flor. W. to Miss. May. June. 21.—*Stem* 8—12 inches high. *Bracts* scarlet. *Corol* yellow.
Painted-cup.

22. MELAMPYRUM. Linn.

Calyx 4-cleft. Upper lip of the corol compressed, margin folded back; lower lip grooved, trifid, subequal. *Capsule* 2-celled, oblique, opening on one side; cells 2-seeded. *Seeds* cartilaginous, cylindric-oblong. *Didynamia. Angiospermia.*

M. americanum Mich.: lower leaves lanceolate or linear-lanceolate; floral ones lanceolate, toothed at the base; flowers axillary, distinct.—*M. lineare* Lam: and *M. latifolium* Muhl.

HAB. Woods. Can. to Car. June, July. ☉.—*Stem* 8—12 inches high, branched at the upper part. *Flowers* yellow.—It varies considerably in the form of the leaves. *Cow Wheat.*

ORDER XC. LABIATÆ. Juss. Lind.

Calyx tubular, regular or bilabiate, persistent. *Corol* bilabiate; upper lip entire or bifid, the lower 3-cleft; the upper

in æstivation overlapping the lower. *Stamens* 4, didynamous, (2 being sometimes abortive,) inserted on the corol, alternate with the lobes of the lower lip; *anthers* 2-celled, sometimes apparently 1-celled, either by the obliteration of the septum or by the abortion of a cell. *Ovary* free, deeply 4-lobed; *ovules* 4; *style* 1, proceeding from the base of the lobes; *stigma* bifid, usually acute, sometimes unequal or dilated. *Fruit* 1—4 small nuts, enclosed within the persistent calyx. *Seeds* erect, with little or no albumen; *embryo* erect; *cotyledons* flat.

Herbs or *undershrubs* with square *stems* and opposite branches. *Leaves* opposite, without stipules.

DIV. I. MENTHOIDÆ.

1. LYCOPUS. Linn.

Calyx tubular, 5-cleft, mouth naked. *Corol* tubular, nearly equal, 4-lobed; upper segments broader and notched. *Stamens* 2, distant, simple. *Diandria. Monogynia.*

1. *L. europæus* Linn.: leaves narrow, lanceolate, serrate; calyx 5-cleft with the segments acuminate, longer than the seed.—*L. americanus* Muhl.—*L. europæus* var. *angustifolius* Torr.

HAB. Moist places. N. Y. to Car. Aug. 2f.—*Stem* erect, 1—2 feet high, square. *Leaves* opposite, upper ones slightly, lower ones deeply toothed. *Flowers* in dense whorls, white. *Calyx* with spines, longer than the seed. *Water Horehound.*

2. *L. virginicus* Linn.: leaves broad-lanceolate, serrate, tapering and entire at the base; calyx shorter than the seed, spineless.

HAB. Wet places. Can. to Car. W. to Rocky Mountains. June—Aug. 2f.—*Stem* pubescent. *Leaves* opposite, sessile, variously toothed. *Flowers* in small whorls. *Calyx* unarmed. —Formerly in high reputation as a remedy in hæmoptysis.

Bugle Weed.

3. *L. uniflorus* Mich.: plant small; root tuberous; stem simple; leaves oval, obtuse, obsoletely toothed; axils 1-flowered.

HAB. Penn. Muhl. Aug. 2f.—*Root* tuberous; *suckers* procumbent, leafy. *Stem* about 3 inches high, rather smooth. *Leaves* on petioles, with few teeth. *Flowers* axillary, solitary. Mich.—An obscure species, perhaps only a variety of the former.

2. ISANTHUS. Mich.

Calyx subcampanulate, *Corol* 5-parted; tube straight and narrow; segments of the border ovate and equal. *Stamens* subequal. *Stigma* linear, recurved.

Didynamia. Gymnospermia.

I. caruleus Mich.

HAB. River banks. N. Y. to Virg. W. to Miss. July, Aug.

☉.—*Plant* viscidly pubescent, a foot high. *Leaves* oval-lanceolate, acute at both ends, 3-nerved. *Flowers* pale blue, 1—2 on axillary peduncles.

3. MENTHA. Linn.

Corol nearly regular, 5-lobed; the broadest lobe notched. *Stamens* erect, distant. *Didynamia. Gymnospermia.*

* *Flowers in a spike.*

1. *M. piperita* Linn.: spikes obtuse, interrupted below; leaves ovate, subglabrous, petiolate; calyx very smooth at the base.

HAB. Marshy grounds near Salina, N. Y.; apparently native.

July. 2f.—*Stem* 12—15 inches high, erect, often purplish.

Leaves varying in form from cordate-ovate to ovate-lanceolate.

Flowers purple. *Peppermint.*

2. *M. viridis* Walt.: spikes interrupted; leaves subsessile, lanceolate-ovate, smooth; bracts setaceous, and with the teeth of the calyx somewhat hairy; stamens not exerted.—*M. tenuis* Mich.

HAB. Wet grounds. N. Y. to Geor. July, Aug. 2f.—*Stem*

12—18 inches high. *Flowers* pale purple, in a long spike consisting of remote whorls.

Spearmint.

** *Flowers whorled.*

3. *M. canadense* Linn.: flowers whorled; leaves lanceolate, serrate, petioled, hairy; stamens as long as the corol.

HAB. Sandy soils. Can. and N. S. W. to Miss. Aug., Sept.

2f.—*Stem* a foot high. *Flowers* in axillary whorls, pale purple.

4. *M. borealis* Mich.: ascending, pubescent; leaves petioled, ovate-lanceolate, acute at both ends; flowers in whorls; stamens exert.

HAB. Moist grounds. Can. and N. S. July, Aug. 2f.—*Stem*

1—2 feet high. *Flowers* white or pale purple. *Stamens* twice

as long as the corol.—Perhaps not distinct from the preceding.

DIV. II. SATUREINEÆ.

4. PYCNANTHEMUM. Mich. •

Heads of flowers surrounded by an involucre of many bracts. *Calyx* tubular, striate, 5-toothed. *Corol* with the upper lip nearly entire, the lower one trifid; middle segment longer. *Stamens* distant; cells of the *anthers* parallel.

Didynamia. Gymnospermia.

* *Stamens exerted.*

1. *P. incanum* Mich.: leaves oblong-ovate, shortly petiolate, acute, suberrate, hoary-tomentose; heads of flowers pedunculate, compound, lateral and terminal; bracts setaceous.—*Clinopodium incanum* Linn.

HAB. Low fields. N. Y. to Car. July—Sept. 2f.—Stem 2—3 feet high, whitish. *Flowers* pale red, in dense lateral and terminal heads or whorls.—Whole plant covered with white soft down. *Wild Basil.*

2. *P. aristatum* Mich.: leaves lanceolate-ovate, subserrate, on very short petioles, whitish; heads sessile; bracts awned.—*Nepeta virginica* Linn.

HAB. Woods. Md. to Car. W. to Tenn. July, Aug. 2f.—Stem 1—2 feet high. *Upper leaves* hoary. *Flowers* very small, white, in one or two sessile whorls and a terminal head. *Bracts* and calyx terminated by long awns.

3. *P. linifolium* Pursh: stem straight, much branched, somewhat scabrous; leaves linear, 3-nerved, very entire, smooth; heads terminal, in a fasciculate corymb.—*Brachystemum virginicum* Mich.—*B. linifolium* Willd.

HAB. Woods. N. Y. to Car. W. to Miss. July, Aug. 2f.—Stem 12—18 inches high, with trichotomous fastigiate branches. *Flowers* white, minute, spotted internally. *Virginian Thyme.*

** *Stamens included.*

4. *P. lanceolatum* Pursh: stem straight, branched, somewhat rough; leaves linear-lanceolate, subsessile, very entire, veined; heads terminal, sessile, in fascicled corymbs.—*P. virginicum*.—*Brachystemum lanceolatum* Willd.

HAB. Hills. Penn. to Car. July, Aug. 2f.—Stem 2 feet high. *Flowers* minute, white, in heads which form irregular corymbs.

5. *P. muticum* Pers.: leaves ovate-lanceolate, subdentate, smoothish; heads terminal; bracts lanceolate, somewhat acute.—*Brachystemum muticum* Mich.

HAB. Rocky hills. Penn. to Geor. July, Aug. 2f.—Stem 2 feet high. *Leaves* large. *Flowers* whitish, small, in loosely flowered heads.

6. *P. verticillatum* Pers.: leaves ovate-lanceolate, sometimes toothed: whorls sessile, compact; bracts acuminate.—*Brachystemum verticillatum* Mich.

HAB. Mountains. Penn. to Car. July, Aug. 2f.—Stem 2 feet high, very pubescent when young. *Flowers* small, white.

5. THYMUS. Linn.

Calyx subcampanulate, orifice closed with villous hairs. *Corol* shortly 2-lipped; upper one notched; the lower one the largest, submarginate. *Didynamia. Gymnospermia.*

T. serpyllum Linn.: stems branched, decumbent; leaves flat, ovate, obtuse, entire, petioled, more or less ciliate at base; flowers capitate.

HAB. Fields. Penn.; naturalized. Nutt. July, Aug. 2f.—Stem spreading, procumbent, branched. *Leaves* more or less hairy. *Flowers* purple or white, in heads, on short hairy pedicels.

Wild Thyme.

6. ORIGANUM. *Linn.*

Flowers collected into a 4-sided cone or dense spike. Upper lip of the *corol* erect, flat, emarginatè; lower 3-parted.

Didynamia. Gymnospermia.

O. vulgare Linn.: spikes roundish, paniced, clustered, smooth; bracts ovate, longer than the calyx; leaves ovate, entire.

HAB. Rocky fields. N. S. July—Sept. 24.—Stems 8—12 inches high, hairy. Flowers purplish, in numerous small spikes, which are crowdèd together so as to form a terminal head.

Marjoram.

7. HYSSOPUS. *Linn.*

Lower lip of the *corol* 3-parted; middle lobe subcrenate. *Stamens* straight and distant. *Didynamia. Gymnospermia.*

1. *H. nepetoides Linn.*: spike formed of whorls, cylindrical; leaves opposite, subcordate, ovate, acuminate, toothed; styles shorter than the *corol*.

HAB. Woods. N. Y. to Virg. W. to Miss. July. 24.—Stem 3—6 feet high, pubescent. Flowers small, yellowish-white or pale purple. Calyx smooth, segments linear. Bracts dilated.

2. *H. scrophularifolius Linn.*: spike formed of whorls, cylindrical; leaves cordate, ovate, acuminate, obtusely toothed; styles longer than the *corol*.

HAB. Wet woods. Penn. to Virg. W. to Ill. July, Aug. 24.—Stem 2 feet high. Flowers purple. Calyx smooth, segments subovate. Bracts ovate.—Closely resembles the former, but most probably distinct.

DIV. IH. AJUGOIDEÆ.

8. TEUCRIUM. *Linn.*

Upper lip of the *corol* short, 2-parted; the lower one 3-lobed, the middle lobe the largest. *Stamens* projecting through the cleft in the upper lip. *Didynamia. Gymnospermia.*

1. *T. canadense Linn.*: hoary-pubescent; leaves ovate-lanceolate, serrate, all petiolate; spike whorled, crowdèd, long; bracts longer than the calyx.

HAB. Low grounds. Can. to Car. W. to Miss. July, Aug. 24.—Stem 12—18 inches high, erect. Flowers purple, in a terminal whorled spike. *Wild Germander.*

2. *T. virginicum Linn.*: pubescent; leaves ovate-oblong, serrate; the upper ones sessile; spikes whorled, crowdèd; bracts as long as the calyx.

HAB. Low grounds. N. Y. to Car. W. to Miss. Aug. 24.—Resembles the preceding and is not perhaps specifically distinct.

9. TRICHOSTEMA. Linn.

Calyx resupinate. Upper lip of the corol falcate. *Stamens* very long and incurved. *Didynamia. Gymnospermia.*

1. *T. dichotoma* Linn.: leaves rhombic-lanceolate, pubescent; stamens very long.

HAB. Dry hills. N. Y. to Geor. W. to Miss. June—Aug. ☉.

Stem 6—10 inches high. *Flowers* blue, in dichotomous panicles.

Blue Curls.

2. *T. linearis* Walt.: stem viscidly pubescent; leaves linear-smooth, sessile, acute at each end; teeth of the calyx awned; stamens very long.—*T. dichotoma* var. *linearis* Pursh.

HAB. Sandy fields. N. J. to Car. June—Sept. ☉.—Resembles the former in habit, but is smaller. It is considered distinct by Nuttall and Elliott.

10. COLLINSONIA. Linn.

Calyx bilabiate, 3-toothed above, bifid below. *Corol* much longer than the calyx, somewhat funnel-form, unequally 5-lobed; lower lobe longer and fimbriate. *Stamens* 2—4.

Diandria. Monogynia.

C. canadensis Linn.: leaves broad-cordate-ovate, glabrous; teeth of the calyx short, subulate; panicle terminal, compound.

HAB. Woods. Can. to Car. July—Sept. 2f.—*Stem* 2—3 feet high, smooth, 4-sided. *Leaves* opposite, large, acuminate, toothed. *Flowers* large, yellow. *Horse Weed.*

DIV. IV. MONARDEÆ.

11. MONARDA. Linn.

Calyx 5-toothed, cylindric, striate. *Corol* ringent, with a long cylindric tube; upper lip linear, nearly straight and entire, involving the filaments; lower lip reflexed, broader, 3-lobed, the middle lobe longer. *Diandria. Monogynia.*

* *Calyx* with 5 equal teeth. *Flowers* in heads. MONARDA. Raf.

1. *M. didyma* Linn.: nearly smooth; stem acute-angled, smooth; leaves broad-ovate or oblong, sometimes cordate, acuminate, mucronate, serrate, rugose, on hairy petioles, midrib and veins hairy beneath; heads of flowers large, often proliferous; bracts oblong, acuminate, nearly entire, coloured; calyx somewhat pubescent; corol large, pubescent.—*M. purpurea* Lam.—*M. coccinea* Mich.—*M. kalmiana* Pursh.

HAB. Swamps. Can. to Car. July, Aug. 2f.—*Stem* 2—3 feet high, simple or branched at the top. *Leaves* varying from lanceolate to broad-ovate, sometimes attenuate at base, sometimes subcordate. *Flowers* scarlet or crimson, in large heads which are sometimes proliferous.—This species, like most of

the rest, is very variable. I have specimens from Whitesborough, N. Y., in which the leaves as are much attenuated at base as in Pursh's figure of *M. kalmiana*; but this is not a constant character, nor do I know of any by which that species can be distinguished.

Oscego Tea.

2. *M. fistulosa* Linn.: stem obtuse-angled, nearly smooth, hollow; leaves oblong-lanceolate, acuminate, coarsely serrate, thin and nearly smooth, on slightly pubescent petioles; heads simple or proliferous; outer bracts oblong, smooth; calyx long, curved, bearded; corol rough, pale.

HAB. Rocky banks. N. Y. to Car. July, Aug. 2 $\frac{1}{2}$.—Stem 2 feet high, always simple. Leaves yellowish-green, petioled, 3–4 inches long and 1 broad, membranaceous, nearly smooth, coarsely toothed. Flowers pale yellow, in heads which are smaller than in the preceding; corol pubescent.—When cultivated the leaves are often smaller, subcordate, ovate, and more hairy than in the native state. Abundant near Rochester, N. Y.

3. *M. allophylla* Mich.: stem obtuse-angled, branched and hairy above; leaves oblong-lanceolate, remotely toothed, smooth above, somewhat hairy beneath; heads simple; outer bracts ovate, acute, coloured, calyx short, densely bearded at the throat.—*M. longifolia* Lam.—*M. mollis* Pursh not of Linn.—*M. oblongata* Ait. Torr.

HAB. Rocky woods. N. Y. to Car. July. 2 $\frac{1}{2}$.—Stem 3–4 feet high, much branched. Leaves often rounded at base, and with a few large teeth, varying in the degree of pubescence. Flowers in heads, about the size of the preceding, pale blue.—The habit is sufficiently characteristic of this species.

4. *M. clinopodia* Linn.: stem obtuse-angled, smooth; leaves ovate-lanceolate, remotely serrate, tapering at base, nearly smooth; heads simple; bracts broad-ovate, acute, entire, nearly smooth; calyx short, ciliate; corol pubescent, slender.—*M. glabra* Linn.?

HAB. Woods. Can. to Car. Pursh. July–Sept. 2 $\frac{1}{2}$.—Stem 3 feet high, obtuse-angled and nearly smooth. Leaves ovate-lanceolate, tapering at base into a petiole, with a few serratures near the middle, punctate as in the preceding, whitish beneath, (closely resembling those of *Clinopodium incanum*,) though apparently quite smooth. Flowers pale purple.—I am not sure that this is the plant described by Pursh under the above name, but I believe it to be the Linnæan one. It is cultivated at Albany, and in many respects much resembles the preceding, with which it may be hereafter united.

** Calyx with 5 unequal teeth. Flowers in whorls. CHEILYCTIS. Raf.

5. *M. punctata* Linn.: nearly smooth; stem obtuse-angled, branched, white-downy; leaves lanceolate-oblong, remotely and obscurely serrate, smooth; flowers whorled; bracts lanceolate, coloured, longer than the whorl.—*M. luica* Mich.

HAB. Pine barrens. N. J. to Car. W. to Miss. Sept. 2 $\frac{1}{2}$ and 3.—Stem 2–3 feet high, branched. Flowers in whorls; calyx long; corol yellow, dotted with brown. Bracts large, red and

yellow.—It contains an assential oil, which is sometimes employed medicinally. See *Med. Recorder*, ii. 294. *Raf. Med. Bot.* ii. 38. *Horse Mint.*

*** *Calyx bilabiate; upper lip shorter bidentate; lower tridentate. Flowers in whorls. BLEPHILIA. Raf.*

6. *M. hirsuta Pursh*: whole plant hairy; leaves on long petioles, ovate, acuminate serrate, hirsute; flowers small, in whorls; bracts short, oblong, acuminate; calyx 2-lipped; upper lip of two short acuminate teeth; lower of three almost bristleform awns.—*M. ciliata Mich.*

HAB. Low woods. N. Y. to Car. W. to Miss. June, July. 2f.—*Stem* 2—3 feet high, branched. *Whorls* 4 or 5 on the upper part of each branch. *Corol* small, pale blue, dotted with purple.

12. CUNILA. Linn.

Calyx cylindrical, 10-striate, 5-toothed. *Corol* ringent, with the upper lip erect, flat and emarginate. *Stamens* 2-sterile; the 2 fertile ones with the style exerted nearly twice the length of the corol. *Stigma* unequally bifid.

Diandria. Monogynia.

1. *C. mariana Linn.*: leaves ovate, serrate; corymb axillary and terminal, dichotomous.—*Ziziphora mariana R. & S.*

HAB. On rocks. N. Y. to Car. W. to Arkansa. July, Aug. 2f.—*Stem* 1—2 feet high, angled, much branched, purple. *Leaves* opposite, sessile, nearly cordate. *Flowers* pale red.

Dittany.

2. *C. glabella Mich.*: smooth; stem surculose; radicle leaves nearly oval; stem leaves oblong-linear, all entire; flowers axillary, mostly solitary, on long peduncles.—*Hedeoma glabra Pers.*—*Ziziphora glabella R. & S.*

HAB. Limestone rocks. Niagara Falls. W. to Miss. Aug. 2f.—*Stem* 8—10 inches high, branched below. *Corol* violet, much longer than the calyx.—Dr. Houghton has found this species at the Falls of St. Anthony.

DIV. V. NEPETEÆ.

13. GALEOPSIS. Linn.

Calyx 5-cleft, awned. Upper lip of the *corol* vaulted, subcrenate; lower lip with 3 unequal lobes, having 2 teeth on its upper side. *Didynamia. Gymnospermia.*

1. *G. ladanum Linn.*: stem hairy, not swollen below the joints; leaves on short petioles, lanceolate, more or less serrate, hairy; flowers whorled; upper lip of the corol slightly crenate.

HAB. Waste grounds. N. S. July. ☉.—*Stem* a foot high,

branched. *Flowers* variegated with red and white. *Calyx* hairy. Smaller than the next. Introduced. *Red Hemp Nettle.*

2. *G. tetrahit* Linn.: stem hispid, swollen between the joints; leaves ovate, hispid, serrate; flowers numerous, in whorls; corol twice as long as the calyx.

HAB. Waste places. N. S. W. to Mich. July. ☉.—*Stem* 1—2 feet high. *Flowers* rose coloured, with a white tube; lower lip dotted with purple. *Calyx* hispid, the teeth pungent. Introduced. *Hemp Nettle.*

14. LEONURUS. Linn.

Calyx 5-angled, 5-toothed. Upper lip of the corol very hairy above, entire; lower one reflexed, 3-parted. *Anthers* sprinkled with shining dots. *Didynamia. Gymnospermia.*

L. cardiaca Linn.: leaves petiolate, pubescent, paler beneath; cauline ones lanceolate, 3-lobed; upper ones entire; flowers in numerous whorls; corol downy on the upper lip; calyx stiff, becoming spiny.

HAB. Waste grounds. Can. to Car. July, Aug. ♀.—*Stem* 2—3 feet high, branched, villous. *Flowers* in crowded whorls, white with a reddish tinge. Introduced. *Motherwort.*

15. LAMIUM. Linn.

Calyx 5-toothed; the teeth acuminate, spreading. Upper lip of the corol vaulted, entire; lower one 2-lobed, toothed on each side at the base. *Anthers* hairy.

Didynamia. Gymnospermia.

L. amplexicaule Linn.: floral leaves broadly cordate, sessile, clasping, crenate or cut; lower ones petiolate.

HAB. Fields and road sides. N. S. May—Nov. ☉.—*Stem* 6—8 inches high. *Flowers* with the tube slender, rose coloured. Introduced. ? *Dead Nettle.*

16. DRACOCEPHALUM. Linn.

Calyx subequal, 5-cleft. Orifice of the corol inflated; upper lip concave. *Stamens* unconnected.

Didynamia. Gymnospermia.

1. *D. virginianum* Linn.: spikes long, with the flowers crowded; bracts small, subulate; teeth of the calyx short, nearly equal; leaves sessile, opposite, linear-lanceolate, acutely serrate.

HAB. Mountain meadows. N. Y. to Car. W. to Michigan. June. ♀.—*Stem* 1—2 feet high, smooth except at the summit. *Flowers* large, bright purple, generally opposite, in terminal spikes.—Dr. Houghton has found this species as far west as Red Cedar River.

2. *D. denticulatum* Linn.: spikes long, with the flowers distant;

bracts small, subulate ; teeth of the calyx nearly equal ; leaves sessile, ovate-lanceolate, slightly toothed.—*Prasium purpureum* Walt.

HAB. Mountains. Penn. to Car. June. 2f.—Stem a foot high, smooth. Flowers purple, variegated on the lower lip.—Smaller than the preceding.

17. STACHYS. Linn.

Calyx 5-cleft, awned. Upper lip of the corol vaulted ; lower one 3-lobed, with the 2 lateral lobes reflexed. *Stamens* when old bent downwards. *Didynamia. Gymnospermia.*

1. *S. hyssopifolia* Mich. : scarcely pubescent, slender, erect ; leaves sessile, linear-lanceolate, remotely subdentate ; whorls about 4-flowered.—*S. palustris* Walt.

HAB. Meadows. N. Y. to Car. July. 2f.—Stem 6—12 inches high. Leaves often linear, very finely serrulate. Flowers sessile. *Calyx* with the teeth almost spinous. Corol a little hairy, purple.—This plant has been found a few miles east of this city.

2. *S. aspera* Mich. : stem erect, angles hairy backwards ; leaves subpetiolate, lanceolate, acutely serrate, very smooth ; whorls about 6-flowered ; calyx teeth divaricate, spiny.—*S. arvensis* Walt.

HAB. Fields. Can. to Car. W. to Miss. July. 2f.—Stem a foot high. Flowers in whorls, forming a terminal leafy spike, purple. Hedge Nettle.

3. *S. sylvatica* Nutt. : leaves shortly petiolate, cordate, ovate, acuminate, serrate, hairy ; floral ones nearly linear ; whorls of 6 flowers ; calyx hairy, with 5 acute teeth.—*S. hispida* Pursh.

HAB. Woods. Can. to Car. W. to Miss. Aug. 2f.—Stem 1—2 feet high, erect, hairy. Flowers purple ; lower lip of the corol whitish with dark spots.—Fetid.

18. NEPETA. Linn.

Calyx arid, straight. Upper lip of the corol notched ; lower one 3-lobed ; the middle lobe the largest and crenate ; lateral ones very short, reflexed. *Didynamia. Gymnospermia.*

N. cataria Linn. : flowers spiked ; whorls slightly pedunculate ; leaves petioled, cordate, dentate-serrate, pale underneath, covered with soft down ; flowers dotted.

HAB. Fields and roads sides. N. S. June—Sept. 2f.—Stem 2—3 feet high, and with the leaves downy and whitish. Flowers white, with a reddish tinge. Introduced. Cat-mint.

19. GLECHOMA. Linn.

Calyx 5-cleft, subequal. Upper lip of the corol bifid ; the lower one trifid, with the intermediate lobe emarginate. Anthers approaching each other in pairs and forming a cross.

Didynamia. Gymnospermia.

G. hederacea Linn. : leaves reniform, crenate, hairy, veined.

HAB. Road sides. N. S. W. to Ohio. May, June. 2f.—Stem a foot high, decumbent. Flowers large, blue, in threes, axillary.
Ground Ivy.

20. MARRUBIUM. Linn.

Calyx with 10 ribs and 5 or 10 spreading teeth. Upper lip of the *corol* bifid, linear, straight; lower one trifid; middle segment the largest, emarginate.

Didynamia. Gymnospermia.

M. vulgare Linn. : stem erect, woolly; leaves roundish-ovate, toothed, rugose, very woolly beneath; whorls villous, many-flowered; calyx with 10 setaceous uncinat teeth.

HAB. Road sides. Can. to Car. W. to Miss. July, Aug. 2f.
—Stem 12—18 inches high. Flowers small, white, in crowded whorls. Smell aromatic; flavour bitter. Medicinal.

White Horehound.

21. BALLOTA. Linn.

Calyx with 10 ribs and 5 teeth. Upper lip of the *corol* concave, notched; lower one trifid; middle lobe the largest, emarginate,

Didynamia. Gymnospermia.

B. nigra Linn. : leaves ovate, undivided, serrate; calyx dilated above, subtruncate, with spreading teeth.

HAB. Mass. Big. July. 2f.—Stem 2—3 feet high. Leaves a little cordate. Flowers purple or white, in axillary whorls.

Black Horehound.

22. MELISSA. Linn.

Calyx arid, above nearly flat; upper lip subfastigiate. Upper lip of the *corol* partly vaulted, bifid; middle lobe of the lower lip cordate.

Didynamia. Gymnospermia.

M. officinalis Linn. : whorls dimidiate; bracts oblong, pedicellate; leaves ovate-acute, serrate.

HAB. Road sides, &c. N. S. July. 2f.—Naturalized. Balm.

23. HEDEOMA. Pers.

Calyx bilabiate, gibbous at the base; upper lip 3-toothed, lower 2; dentures all subulate. *Corol* ringent. *Stamens* 2-sterile; the 2 fertile ones about the length of the *corol*.

Diandria. Monogynia.

H. pulegioides Pers. : leaves oblong, serrate; peduncles axillary, many-flowered.—*Cunila pulegioides* Linn.—*Ziziphora pulegioides* R. & S.

HAB. Dry hills and woods. Can to Car. July, Aug. 6.—Stem 6—10 inches high, 4-sided, branched above. Flowers small, pale purple. Pennyroyal.

24. CLINOPODIUM. Linn.

Involucre of many linear acuminate leaflets placed under the whorls of flowers. Upper lip of the *corol* erect, emarginate; lower one the largest, emarginate.

Didynamia. Gymnospermia.

C. vulgare Linn.: leaves petiolate, ovate, subserrate, hairy; whorls hairy, axillary and terminal; pedicels branched; bracts setaceous.

HAB. Rocky woods. Can. and N. S. W. to Miss. July, Aug. 24.—Stem 12—18 inches high. Flowers purple or rose coloured, in crowded whorls; smell aromatic. Wild Basil.

25. PRUNELLA. Linn.

Upper lip of the *calyx* with 3 very short teeth. Filaments forked at the extremity, one point bearing the *anther*. Stigma bifid.

Didynamia. Gymnospermia.

P. vulgaris Linn.: leaves petiolate, oblong-ovate, toothed at base; lips of the *calyx* unequal; the upper one truncate, 3-awned; stem ascending.

HAB. Meadows. Can. to Car. W. to Miss. June—Aug. 24.—Stem 8—12 inches high, hairy. Flowers large, purple, densely whorled, so as to form an imbricated oblong spike.—*P. pennsylvanica* of Willdenow is a mere variety. Introduced.

Self-heal.

26. SCUTELLARIA. Linn.

Calyx bilabiate; upper lip with a lid covering the seeds like an operculum. *Corol* bilabiate; upper lip concave; lower 3-lobed.

Didynamia. Gymnospermia.

* Flowers axillary, solitary.

1. *S. galericulata* Linn.: somewhat branched; leaves cordate-lanceolate, subsessile, crenate; flowers axillary, solitary or in pairs; calyx hairy.

HAB. Near marshes. Can. and N. S. Aug. 24.—Stem 12—18 inches high. Flowers large, blue, pubescent.

Common Skull-cap.

2. *S. gracilis* Nutt.: stem mostly simple; leaves remote, broad-ovate, toothed, smooth and sessile, scabrous on the margin; upper ones smaller, entire; flowers axillary.

HAB. Shady rocks. Penn. S. to Louisiana. June. 24.—Stem 12—18 inches high, slender, erect. Leaves opposite, remote, sparingly toothed, veined. Flowers pale blue, axillary and op-

posite.—I have specimens collected near New-Orleans by Dr. T. R. Ingalls.

3. *S. ambigua* Nutt. : low, subdecumbent and divaricately branched; leaves sessile, ovate, remotely and rarely serrate, subhirsute above; flowers small, axillary.—*S. parvula* Mich.?

HAB. Rocky grounds. Can. N. J. Ohio. W. to Miss. July. 2l.—*Root* long, consisting of a succession of tubers. *Stem* coloured, branched divaricately from near the base, 4—6 inches high. *Leaves* small, closely sessile, prominently veined. *Flowers* small, axillary, blue, hairy.—I have found this plant on the slate hills near New-Brunswick, N. J. The specimens obtained from that locality, agree exactly with the Canadian plant received from my friend, Dr. A. F. Holmes, of Montreal. It has also been found by Dr. Houghton on the Upper Mississippi.

** *Flowers racemose.*

4. *S. lateriflora* Linn. : much branched, nearly smooth; leaves on long petioles, ovate, toothed, those of the stem slightly cordate, membranaceous; racemes lateral, leafy.

HAB. Wet meadows. Can. to Car. and W. to Miss. July, Aug. 2l.—*Stem* 1—2 feet high, branching. *Flowers* small, blue, in long racemes.—At one time in great repute as a cure for hydrophobia. *Skull-cap.*

5. *S. integrifolia* Linn. : stem nearly simple, densely pubescent; leaves subsessile, oblong, obtuse, wedge-form at base, obscurely toothed; racemes loose, leafy.

HAB. Swamps. N. Y. to Car. W. to Miss. June. 2l.—*Stem* 18—24 inches high. *Flowers* large, blue, opposite, often in panicles.—A variable species.

6. *S. hyssopifolia* Linn. : minutely and densely pubescent, branched; leaves lanceolate-linear, very entire.

HAB. Swamps. Penn. Muhl. June. 2l.—*Stem* a foot high. *Leaves* obtuse. *Flowers* very large.—Perhaps only a variety of the preceding.

7. *S. pilosa* Mich. : nearly simple; pubescent; leaves remote, rhombic-ovate, obtuse, attenuated at the base into a petiole, rounded-crenate; racemes terminal, loose, mostly branched; bracts lanceolate entire.—*S. caroliniana* Walt.—*S. ovalifolia* Muhl. Torr.

HAB. Rocky woods. Penn. to Car. July. 2l.—*Stem* 18—20 inches high. *Lower leaves* cordate. *Flowers* large, whitish, in paniculate racemes.

8. *S. canescens* Nutt. : branched; leaves ovate, acute, petiolate, acutely toothed, under side with the bracts and flowers hoary-villous; lower leaves subcordate; racemes pedicelled, subpaniculate, axillary and terminal; bracts ovate-lanceolate, longer than the calyx.

HAB. Woods. Penn. W. to Miss. July. 2l.—*Stem* 2—3 feet high. *Leaves* large, whitish beneath. *Flowers* deep blue, in lateral and terminal racemes.

27. SALVIA. Linn.

Calyx subcampanulate, 2-lipped; upper lip 3-toothed; lower bifid. *Corol* ringent. *Filaments* 2, fertile, bifid, one lobe ascending with a dimidiate *anther*, the other sterile.

Diandria. Monogynia.

1. *S. lyrata* Linn.: stem nearly leafless, retrosely pubescent; radical leaves lyrate-dentate; upper lip of the corol very short.

HAB. Woods. Can. to Car. June. 2f.—*Stem* about a foot high, densely covered with reflected hairs. *Leaves* mostly radical, more or less lyrate or pinnatifid, very obtuse. *Flowers* blue, about 6 in a whorl.

2. *S. claytoni* Ell.: leaves cordate-ovate, sinuate, toothed, rugose; teeth of the upper lip of the calyx connivent.—*Salvia verbenacea* Muhl.

HAB. Woods. Penn. to Car. June—Oct. 2f.—*Stem* erect, 8—12 inches high. *Flowers* in whorls, violet.

3. *S. urticifolia* Linn.: viscous and villous; leaves ovate-oblong, toothed, base narrowed into a petiole; calyx 3-cleft, the upper segment 3-toothed.

HAB. Mountains. N. J. to Car. June. 2f.—*Leaves* ovate, very pubescent. *Flowers* blue, viscous, in remote whorls.

ORDER XCI. VERBENACEÆ. Brown. Lind.

Calyx tubular, persistent, inferior. *Corol* hypogynous, monopetalous, tubular, deciduous, limb usually irregular. *Stamens* usually 4, didynamous, seldom equal, sometimes only 2. *Ovary* 2—4-celled; *ovules* erect or pendulous, solitary or twin; *style* 1; *stigma* bifid or undivided. *Fruit* a drupe or berry. *Seeds* erect or pendulous; *albumen* none or very thin; *embryo* erect.

Trees, shrubs or herbs. *Leaves* generally opposite, simple or compound, without stipules.

1. VERBENA. Linn.

Calyx 5-cleft. *Corol* funnel-form; limb unequal, 5-cleft. *Stamens* 4, didynamous. *Pericarp* thin, evanescent. *Seeds* 4.—*Flowers* paniculate-spiked. *Didynamia. Angiospermia.*

* *Leaves* laciniate.

1. *V. hastata* Linn.: erect, tall; leaves lanceolate, acuminate, sharply serrate; lower ones lobed or subhastate; spikes filiform, erect, panicled, somewhat imbricate; flowers tetrandrous.

HAB. Low grounds. Can. to Geor. W. to Miss. July, Aug.

2f.—*Stem* 3—5 feet high. *Leaves* rough. *Flowers* small, purple, forming numerous spikes. *Vervain.*

2. *V. spuria* Linn.: stem decumbent, branched, divaricate; leaves lacinate, much divided; spikes filiform, loose; bracts longer than the calyx.

HAB. Sandy fields. Penn. to Car. W. to Miss. Aug.—Oct.

☉.—*Stem* 1—2 feet long. *Flowers* small, blue, in paniculate spikes, at length scattered.

**—*Leaves* entire.

3. *V. urticifolia* Linn.: erect, somewhat pubescent; leaves ovate, acute, serrate, petiolate; spikes filiform, axillary and terminal; flowers distinct, tetrandrous.

HAB. Road sides. N. Y. to Car. July, Aug. 2f.—*Stem* 2—3 feet high, somewhat hairy. *Flowers* small, white, tinged with purple, in filiform spikes forming panicles.

4. *V. angustifolia* Mich.: erect, mostly simple; leaves linear-lanceolate, attenuate at the base, remotely toothed, with elevated veins; spikes filiform, solitary, axillary and terminal.—*V. rugosa* Willd.

HAB. Rocky grounds. N. Y. and Penn. W. to Miss. June—Aug. 2f.—*Stem* a foot high, hairy. *Flowers* blue.

2. ZAPANIA. Link,

Calyx 5-toothed. *Corol* 5-lobed. *Stamens* 4, didynamous. *Stigma* peltately capitate, oblique. *Seeds* 2, at first covered by an evanescent pericarp.—Flowers in heads.

Didynamia. Angiospermia.

1. *Z. nodiflora* Lam.: leaves ovate-wedge-form, serrate above; spikes solitary, on long filiform peduncles, forming conical heads; stem herbaceous, creeping.—*Verbena nodiflora* Linn.—*Lippia nodiflora* Mich.

HAB. Low grounds. Penn. to Car. W. to Miss. July. 2f.—*Stem* 6—8 inches long, procumbent. *Flowers* bluish-white, in heads which are on peduncles 4—6 inches long.

2. *Z. lanceolata* Pers.: leaves linear-lanceolate, acutely serrate; spikes solitary, on long peduncles, forming conical heads; stem herbaceous, creeping.—*Lippia lanceolata* Mich.

HAB. Banks of streams. Penn. to Car. July, Aug. 2f.—Does not differ from the former, except in the shape of the leaves; and is, perhaps, not a distinct species.

3. PHRYMA. Linn.

Calyx cylindric; upper lip longer, trifid; lower 2-toothed. *Corol* with the upper lip emarginate, the lower much longer. *Seed* one.

Didynamia. Angiospermia.

P. leptostachya Linn.: leaves ovate, toothed, petioled; spikes terminal, slender; flowers opposite.

HAB. Shady woods. Can. to Car. July. 2f.—Stem 2—3 feet high. Leaves large. Spikes on long slender peduncles. Flowers small, opposite, purplish. Calyx reflected downwards when in fruit. Lopseed.

ORDER XCII. ACANTHACEÆ. Juss. Lind.

Calyx 4 or 5-divided, rarely either multifid or entire and obsolete, persistent. *Corol* mostly irregular, with the limb ringent or bilabiate, or occasionally 1-lipped, sometimes nearly equal, deciduous. *Stamens* mostly 2, sometimes with 2—3 shorter ones; *anthers* 1—2-celled, bursting longitudinally. *Ovary* seated in the disk, 2-celled; *ovules* 2 or many in each cell; *style* 1; *stigma* 2-lobed or entire; *placentæ* in the axis. *Capsule* 2-celled, bursting elastically with 2 valves. *Seeds* 2 or many in each cell, or by abortion solitary, ascending, usually subtended by rigid subulate processes from the dissepiment; *albumen* none; *embryo* curved or straight; *radicle* cylindrical, descending, next the hilum; *cotyledons* large, foliaceous.

Herbs or *shrubs*. Leaves opposite, without stipules.

1. JUSTICIA. Linn.

Calyx 5-parted, often with 2 bracts at the base. *Corol* irregular, bilabiate; upper lip emarginate; the lower 3-cleft. *Filaments* 2, each with a single or double anther. *Stigma* 1. *Capsule* attenuated, 2-celled, 2-valved; dissepiment growing from the centre of each valve. *Diandria. Monogynia.*

J. pedunculosa Mich.: spikes axillary; peduncles elongated, alternate; flowers crowded; leaves lanceolate.—*J. americana* Vahl.—*J. linearifolia* Lam.—*Dianthera americana* Linn.

HAB. In water. Can. to Car. W. to Miss. July, Aug. 2f.—Root creeping. Stem 2 feet high. Leaves nearly 6 inches long, narrow-lanceolate. Flowers on axillary peduncles which are nearly as long as the leaves, pale purple.

2. RUELLIA. Linn.

Calyx 5-parted, often bibracteate. *Corol* subcampanulate, border 5-lobed. *Stamens* approximating by pairs. *Capsule* attenuated at either extremity, bursting with elastic teeth. *Seeds* few. *Didynamia. Angiospermia.*

R. strepens Linn.: erect, hairy; leaves on petioles, opposite, lanceolate-ovate, entire; peduncles 1—3-flowered; segments of the calyx linear-lanceolate, very acute, hispid, shorter than the tube of the corol.

HAB. Shady woods. Penn. to Geor. W. to Miss. July. 2f.
—Stem 8—12 inches high. Flowers axillary, blue.

ORDER XCIII. LENTIBULARIÆ. Rich. Lind.

Calyx divided, persistent. *Corol* irregular, bilabiate, with a spur. *Stamens* 2, included within the corol and inserted into its base; *anthers* 1-celled, sometimes contracted in the middle. *Ovary* 1-celled; *style* 1; *stigma* bilamellate. *Capsule* 1-celled, many-seeded, with a large central placenta. *Seeds* minute; *albumen* none; *embryo* sometimes undivided.

Herbs, growing in water or marshes. *Leaves* radical, undivided; or compound, resembling roots and bearing little vesicles.

1. PINGUICULA. Linn.

Calyx 4—5-cleft. *Corol* ringent, spurred at the base beneath. *Stamens* 2, very short. *Stigma* 2-lipped.

Diandria. Monogynia.

P. vulgaris Linn.: spur cylindrical, acute, as long as the veinless petal; upper lip 2-lobed; lower one in three unequal obtuse segments.
—*P. elatior* Mich.?

HAB. Wet rocks. Rochester, N. Y. N. to Arc. Amer. April. 2f.—*Leaves* all radical, spatulate-ovate, fleshy. *Scape* 4—6 inches high. *Flowers* solitary, nodding; tube of the corol, villose, purple.—Specimens of this plant, from the vicinity of Rochester, N. Y., appear to me to differ in no respect from the foreign one. *Butterwort.*

2. UTRICULARIA. Linn.

Calyx 2-parted; lips undivided, nearly equal. *Corol* personate, with the lower lip spurred at the base. *Stamens* 2, with the filaments incurved bearing the anthers within the apex. *Stigma* 2-lipped. *Capsule* 1-celled.

Diandria. Monogynia.

Obs. The North American species of this genus have been attentively studied by Capt. Le Conte, whose valuable observations are published in the first volume of the Annals of the New-York Lyceum.

1. *U. ceratophylla* Mich.: floating; scape many-flowered; radicle leaves whorled, inflated, pinnatifid at the extremities; lower lip of the corol deeply 3-lobed; spur short, obtuse, deeply emarginate.—*U. inflata* Walt.

HAB. Ponds. N. Y. to Mexico. July, Aug. 2f.—*Root* very long, branching, with capillary radicles furnished with numer-

ous compressed air vessels. *Stem* 8 inches high. *Flowers* large, yellow, subcorymbed. *Bladderwort.*

2. *U. vulgaris* Linn.: floating; stems submerged, dichotomous; leaves many-parted, margins bristly; scape 5—9-flowered; upper lip of the corol entire, broad-ovate; spur conical, incurved.—*U. macrorhiza* Le Conte.

HAB. Pools and ponds of deep water. Can. to Car. Aug. 24.—*Root* much branched. *Scape* 8—10 inches high. *Flowers* large, racemed, yellow; *spur* entire at the apex and rather obtuse.

3. *U. fornicata* Le Conte: floating; scape 1—2-flowered; upper lip 3-lobed, the middle lobe arched over the palate; spur incurved, conoidal, obtuse, very entire, appressed to the lower lip of the corol.—*U. minor* Pursh. Torr.—*U. gibba* Ell.

HAB. Swamps and ditches. N. Y. to Geor. Aug. 24.—*Root* furnished with air vessels. *Scape* naked. *Flowers* few, small, yellow.—According to Capt. Le Conte, it bears no resemblance to *U. minor* of Europe, except in the smallness of its flowers.

4. *U. setacea* Mich.: scape filiform, rooting, with 2 or more flowers; upper lip of the corol ovate; the lower deeply 3-lobed; spur subulate, as long as the lower lip of the corol.—*U. subulata* Pursh.—*U. pumila* Walt.

HAB. Swamps. N. Y. to Flor. June. 24.—*Scape* very slender, 4—6 inches high, furnished with scales. *Flowers* many, small, yellow. Upper lip of the corol half the size of the lower.

5. *U. gibba* Gron.: floating; scape mostly 2-flowered; spur shorter than the lower lip of the corol, obtuse, gibbous in the middle.

HAB. Ponds. N. S. July. 24.—*Scape* 2—3 inches high, (4—7-flowered. Le Conte.) *Flowers* small, yellow. *Spur* swelling out in the middle.

6. *U. cornuta* Mich.: scape rooting, erect, rigid; flowers 2—3, subsessile; lower lip of the corol very wide, 3-lobed; spur very acute, porrected.

HAB. Wet rocks. Can. and N. S. On Lake Superior. Dr. Houghton. Aug. 24.—*Scape* 10 inches high, with minute bracts. *Flowers* yellow, approximate, nearly sessile, as large as those of *U. vulgaris*.

7. *U. striata* Le Conte: floating; scape 2—6 flowered; upper lip of the corol ovate-round, subemarginate, margin waved; lower lip 3-lobed, reflected at the sides; spur straight, obtuse, shorter than the lower lip.—*U. fibrosa* Ell. not of Walt.

HAB. Swamps. N. Y. to Flor. June. 24.—*Root* furnished with air vessels. *Scape* a foot high. *Corol* large, yellow, striated with red; *spur* much shorter than the lower lip.

8. *U. personata* Le Conte: scape rooting, many-flowered; upper lip of the corol emarginate, reclinate; lower small, entire; palate very large; spur linear subulate, somewhat acute.

HAB. Bogs. N. Eng. to Flor. *Le Conte*. ☉.—*Scape* 12—18 inches high, 4—10-flowered, furnished with scales. *Flowers* yellow, rather large. *Spur* more slender and acute than in *U. cornuta*.—Resembles an *Antirrhinum*.

9. *U. purpurea* Walt. : scapes axillary, generally 1-flowered ; involucre none ; lower lip of the corol 3-lobed ; lateral lobes cucullate on the under side ; spur compressed, half as long as the corol.—*U. saccata* Ell.

HAB. Ponds on mountains. Mass. to Flor. N. W. Territory. *Houghton*. *Scapes* solitary and in pairs, 2—3 inches long. *Flowers* purple.

ORDER XCIV. PRIMULACEÆ. Juss. Lind.

Calyx 5- rarely 4-cleft, inferior, regular, persistent. *Corol* monopetalous, hypogynous, regular ; the limb 5- rarely 4-cleft. *Stamens* inserted upon the corol, equal in number, and opposite to its segments. *Ovary* 1-celled ; *style* 1 ; *stigmas* capitate. *Capsule* opening with valves ; *placentæ* central, distinct. *Seeds* numerous, peltate ; *embryo* straight, cylindrical, included within fleshy albumen, and lying across the hilum.

Herbs, with the *leaves* usually opposite and either whorled or scattered.

1. PRIMULA. Linn.

Calyx tubular, 5-toothed. *Corol* salver-form ; tube cylindrical ; orifice naked. *Stamens* 5, not exserted. *Stigma* globose. *Capsule* opening with 10 teeth.—Flowers in an involucrate umbel. *Pentandria. Monogynia.*

P. farinosa var. *americana* Torr. : leaves obovate-spatulate, repandly crenate-dentate, pulverulent beneath ; umbel many-flowered ; peduncles spreading ; border of the corol flat, as long as the tube, with obtuse obcordate segments.—*P. pusilla* Goldie.

HAB. Shores of Lake Huron and Superior. 24.—*Scape* 6—10 inches high. *Leaves* all radical. *Flowers* pale purple.

Bird's-eye Primrose.

2. DODECANTHEON. Linn.

Calyx 5-cleft. *Corol* rotate, reflexed, 5-cleft. *Stamens* 5, seated in the tube. *Stigma* obtuse. *Capsule* 1-celled, oblong, opening at the apex. *Pentandria. Monogynia.*

1. *D. meadia* Linn. : scape erect, simple, smooth ; leaves oblong-oval, repandly toothed ; umbel many-flowered ; flowers nodding ; bracts numerous, oval.

HAB. Rocky places. Penn. to Virg. W. to Miss. May, June.
 2l.—Scape 8—12 inches high. Flowers large, purple.

2. *D. integrifolium* Mich. : leaves oblong-oval, subspatulate ; umbel few-flowered, straight ; bracts linear.

HAB. Mountains. Penn. ? N. to Subarc. Amer. June. 2l.—
 Flowers pale blue, smaller than in the preceding. Pursh.

3. TRIENTALIS. Linn.

Calyx 7-parted. *Corol* rotate, in 7 segments, regular and flat. *Stamens* 5—8. *Berry* dry, opening at the suture. *Seeds* many. *Heptandria. Monogynia.*

T. americana Pursh : leaves narrow-lanceolate, serrulate, acuminate ; petals acuminate.—*T. europæa* Mich.—*T. europæa* var. *angustifolia* Nutt. Torr.

HAB. Low woods. N. S. N. to Subarc. Amer. May, June.
 2l.—Stem 6 inches high. Leaves 6 or 7 in a terminal whorl.
 Flowers white, on terminal filiform peduncles.

4. HOTTONIA. Linn.

Calyx 5-parted. *Corol* salver-form, 5-lobed. *Stamens* seated on the tube of the corol. *Stigma* globular. *Capsule* 1-celled, globose, acuminate. *Pentandria. Monogynia.*

H. inflata Linn. : stem thick, generally submersed ; scape jointed, with the internodes and lower part inflated ; flowers verticillate, mostly in fours, pedunculate.—*H. palustris* Pursh.

HAB. Stagnant waters. N. Y. to Geor. ; rare. July. 2l.—
 Stem thick, spongy, generally submersed. Leaves long and pectinate. Flowers whorled, on peduncles, white.—Abundant near North Salem, Westchester co., N. Y. Dr. S. B. Mead.

Water Feather.

5. GLAUX. Linn.

Calyx campanulate, 5-lobed, coloured. *Corol* none. *Stamens* 5. *Capsule* globose, 5-valved, 5-seeded, surrounded by the calyx. *Receptacle* rounded, marked with favulose punctures. *Pentandria. Monogynia.*

G. maritima Linn.

HAB. Marshes on the sea coast. Can. and N. S. ; rare. July. 2l.—Stem suberect or procumbent, 4—5 inches high, very leafy. Leaves opposite, ovate or roundish, smooth, entire, fleshy. Flowers minute, sessile, solitary, axillary, reddish-white.—For specimens of this plant from the vicinity of Boston, I am indebted to my friend Dr. Charles Pickering of Philadelphia.

Black Salt-wort.

6. LYSIMACHIA. Linn.

Calyx 5-parted. *Corol* 5-cleft, rotate. *Stamens* 5. *Stigma* 1. *Capsule* globose, 10-valved.

Pentandria. Monogynia.

1. *L. stricta* Ait. : stem erect, smooth ; leaves opposite, lanceolate, sessile, punctate ; raceme terminal, very long, lax ; pedicels long, slender.—*L. racemosa* Mich. Pursh.

HAB. Low grounds. Can. to Vir. July, Aug. 2l.—*Stem* 12—18 inches high. *Leaves* few, with bulbs in the axils. *Flowers* yellow, on capillary pedicels, arranged in a terminal raceme 6—8 inches long. *Upright Loosestrife.*

2. *L. quadrifolia* Linn. : stem simple, a little hairy ; leaves in whorls of four or fives, ovate-lanceolate, nearly sessile, acuminate ; peduncles in fours, axillary, 1-flowered ; segments of the corol oval, entire.—*L. hirsuta* Mich.—*L. punctata* Walt.

HAB. Low grounds. Can. to Car. June, July. 2l.—*Stem* 12—18 inches high. *Leaves* varying from 3—8 in a whorl, though generally four. *Flowers* yellow.

3. *L. longifolia* Pursh : very smooth and branched ; leaves opposite, sessile, linear, very long ; upper ones in fours ; peduncles in fours, 1-flowered ; segments of the corol ovate, acuminate, serrulate.—*L. quadrifolia* Sims.

HAB. Wet woods. Penn. to Vir. Pursh. June. 2l.—*Stem* 2—3 feet high. *Leaves* narrow, not dotted ; floral ones whorled. *Flowers* mostly at the extremity of the branches, at length nodding.—It seems to be distinct from the preceding, although not so considered by Muhlenberg.

4. *L. ciliata* Linn. : stem nearly smooth ; leaves opposite, on long petioles, subcordate-ovate, acuminate ; petioles ciliate ; peduncles mostly in pairs, 1-flowered ; flowers drooping ; segments of the corol rounded, acuminate, crenate.

HAB. Banks of streams. Can. to Car. July. 2l.—*Stem* 2—3 feet high. *Flowers* large, yellow, the corol deeply 5-cleft.

5. *L. hybrida* Mich. : stem smooth ; leaves petioled, opposite, lanceolate, acute at each end ; petioles ciliate ; flowers nodding ; peduncles axillary ; corol shorter than the calyx ; divisions crenulate.—*L. heterophylla* Nutt.

HAB. Moist grounds. N. Y. to Car. July. 2l.—Resembles the preceding species in every respect except in the form of the leaves which are narrow and lanceolate, and never cordate at base.

6. *L. capitata* Pursh : stem smooth, simple, punctate ; leaves opposite, sessile, broad-lanceolate, punctate ; peduncles axillary, elongated ; flowers in dense roundish heads, 6—7-parted.—*L. thyrsifolia* Mich. ?

HAB. Swamps. N. S. N. to Arc. Amer. June. 2l.—*Stem* a foot high. *Flowers* yellow, in roundish or ovate heads which are on axillary peduncles.

7. *L. revoluta* Nutt. : stem square, smooth, branched ; leaves opposite, sessile, long linear, margin revolute ; peduncles 1-flowered, subterminal, nodding.

HAB. Rocks. N. Y. to Del. Aug. 24.—Stem 12—18 inches high. Flowers yellow, mostly on the summit of the stem, on slender peduncles.—This species is abundant on the shores of the great lakes, and Dr. Houghton informs me that he has found it on the banks of the St. Croix river, in the North Western Territory.

7. ANAGALLIS. Linn.

Calyx 5-parted. *Corol* rotate, 5-lobed. *Stamens* 5 ; filaments hairy. *Capsule* globular, opening hemispherically, many-seeded. *Pentandria. Monogynia.*

A. arvensis Linn. : stem procumbent, branched ; leaves opposite, ovate, sessile, dotted beneath, very entire ; margin of the corol broadly and very obtusely crenate, pilose-glandular.

HAB. Fields, &c. N. Y. to Car. July. ☼.—Stem 4—6 inches high. Flowers scarlet, in solitary axillary peduncles.

Scarlet Pimpernel.

8. SAMOLUS. Linn.

Calyx 5-cleft, semisuperior, persistent. *Corol* salver-form, 5-lobed. *Stamens* 5, antheriferous, opposite the segments of the corol, and 5 (scales) alternate with them, sterile. *Capsule* half inferior, 1-celled, 5-toothed, many-seeded ; receptacle unconnected. *Pentandria. Monogynia.*

S. valerandi Linn. : stem erect ; leaves obtuse ; racemes many-flowered ; pedicels with small bracts.

HAB. Wet grounds. Can. to Car. July—Sept. 24.—Stem 8—12 inches high, smooth. Leaves ovate, subpetiolate, entire and somewhat fleshy. Flowers small, white. *Water Pimpernel.*

ORDER XCV. PLUMBAGINEÆ. Juss. Lind.

Calyx tubular, plaited, persistent. *Corol* monopetalous or of 5 petals, regular. *Stamens* 5, hypogynous when the petals are combined, inserted into the base of the petals when distinct. *Ovary* free, 1-celled ; *ovule* pendulous, from the end of an umbilical cord, arising from the bottom of the cell ; *styles* 5, seldom 3—4, each bearing a subulate stigma. *Fruit* a utricle. *Seed* pendulous ; *embryo* straight ; *radicle* superior.

Herbs or undershrubs. Leaves alternate or clustered, undivided, somewhat sheathing at base.

1. STATICE. *Linn.*

Calyx funnel-form, plaited, scarious. *Petals* 5. *Stamens* 5, inserted on the petals. *Styles* 5. *Pericarp* indehiscent. —Flowers in spikes or heads.

Pentandria. Pentagynia.

1. *S. limonium* *Linn.*: scape paniculate, terete; leaves all radical, oblong, undulate, smooth and nerveless, mucronate below the tip. —*S. caroliniana* *Walt.*

HAB. Salt marshes. N. Y. to Car. Aug.—Oct. 24.—*Root* large, lignous. *Scape* longer than the leaves, with several lanceolate bracts. *Flowers* sessile, secund, in a very large and much branched panicle, blue.—A valuable astringent. *Big. Med. Bot.* ii. 51. *Marsh Rosemary.*

2. *S. armeria* *Linn.*: leaves all radical, linear, flat, smooth; scape simple, terete, bearing a round head of flowers.

HAB. Rocks near the sea shore. Penn. to Vir. *Pursh.* N. to Arc. Amer. July, Aug. 24.—*Root* large, ligneous. *Scape* a foot high. *Heads of flowers* rose coloured, intermixed with scales and having also a 3-leaved general involucre. *Thrift.*

ORDER XCVI. PLANTAGINEÆ. *Juss. Lind.*

Flowers usually monoclinal, seldom declinal. *Calyx* 4-parted, persistent. *Corol* monopetalous, persistent, with a 4-parted limb. *Stamens* 4, inserted into the corol, alternate with its segments; *filaments* long, filiform, doubled inwards in æstivation; *anthers* versatile, 2-celled. *Ovary* sessile, without a disk, 2- very seldom 4-celled; *ovules* solitary, in pairs or indefinite; *style* simple, capillary; *stigma* hispid, simple or rarely bifid. *Capsule* membranous, opening transversely. *Seeds* sessile, peltate or erect; *embryo* in the axis of fleshy albumen; *radicle* inferior.

Herbs usually stemless. *Leaves* flat and ribbed, or taper and fleshy.

1. PLANTAGO. *Linn.*

Flowers perfect. *Calyx* 4-cleft. *Corol* 4-cleft; border reflected. *Stamens* 4, mostly exserted, very long. *Capsule* 2—4-celled, opening transversely.

Tetrandria. Monogynia.

* *Leaves* broad.

1. *P. cordata* *Lam.*: leaves on long petioles, ovate, cordate, very broad, subdentate, smooth; spike very long; flowers subimbricated;

the lower ones scattered ; bracts ovate, obtuse ; cells of the capsule 2-seeded.—*P. kentuckiensis* Mich.

HAB. Banks of streams. Can. N. Y. and Penn. W. to Tenn. June—July. 2f.—*Scape* 12—18 inches high. *Leaves* 6 inches long, smooth, generally cordate at base. *Flowers* in a slender elongated spike.—Sprengel considers the *P. asiatica* of Europe, and *P. glabra* of Nuttall, synonymous with it.

2. *P. major* Linn. : leaves ovate, smoothish, subdentate, on longish petioles ; scape terete ; spike cylindrical, very long ; flowers closely imbricated ; cells of the capsule many seeded.

HAB. Fields, &c. Throughout Can. and the U. S. June—Aug. 2f.—*Leaves* spreading on the ground, coarsely toothed. *Scape* 8—12 inches high, pubescent. *Spike* 2—6 inches long, close. Introduced. Common Plantain.

3. *P. media* Linn. : leaves ovate, pubescent, on very short petioles ; spike short, cylindrical ; scape rounded ; cells of the capsule 1-seeded.

HAB. Fields. N. Y. and Penn. July. 2f.—*Leaves* 2 inches long. *Scape* longer than the leaves. *Flowers* in a closely imbricated spike, which is seldom more than 2 inches long.

4. *P. virginica* Linn. : hairy-pubescent ; leaves lanceolate-ovate, sparingly toothed, 3-nerved, tapering at base ; spike cylindrical, with remote flowers ; scape angular.

HAB. Sandy soils. Throughout the U. S. June. 3.—*Scape* hairy, almost hispid, longer than the leaves. *Spikes* 1—4 inches long, with the flowers at first crowded, but at length distant. *Corol* yellowish.

5. *P. lanceolata* Linn. : leaves lanceolate, tapering at each end, 3—5-nerved, remotely toothed ; spike short, ovate-cylindrical, compact ; scape angled ; capsule 2-seeded.

HAB. Pastures. Can. to Car. May—Sept. 2f.—*Scape* 6—12 inches high, a little hairy. *Flowers* in a very dense spike. *Bracts* ovate, brownish, as long as the calyx. Introduced.

6. *P. cucullata* Lam. : leaves ovate-cucullate, subdenticulate, 9-nerved, pubescent beneath ; spike cylindrical, imbricated ; scape terete.—*P. maxima* Jacq. Torr.

HAB. Moist rocky situations. Can. and Maine. Pursh. July, Aug. 2f.

** *Leaves linear.*

7. *P. maritima* Linn. : leaves linear, grooved, fleshy, hairy near the base, mostly entire, often remotely toothed ; scape round, terete ; spike cylindrical, dense.—*P. pauciflora* Pursh.

HAB. Salt marshes. N. S. Aug., Sept. 2f.—*Scape* 6—10 inches high. *Leaves* fleshy. *Spike* cylindrical, short.

8. *P. pusilla* Nutt. : minutely pubescent ; leaves linear-subulate, flat, entire, acute ; scape terete, slender, longer than the leaves ; spike cylindrical, loose ; lower flowers distant ; bracts ovate, acute, as long as the calyx.—*P. hybrida* Bart. ?—*P. linearifolia* Muhl. ?

HAB. Sandy hills. Penn. to Flor. W. to Miss. June. ☉.—
Stem 2—3 inches high. *Flowers* in an interrupted spike.

SUBCLASS IV. MONOCHLAMYDEÆ.

Flowers with a simple perianth or perigonium. (Apetalous.)

ORDER XCVII. AMARANTHACEÆ. Juss. Lind.

Perianth 3—5-parted, hypogynous, scarious, persistent. *Stamens* hypogynous, either 5, or some multiple of that number, distinct or monadelphous; *anthers* 1—2-celled. *Ovary* single, superior, 1 or few-seeded; *style* 1 or none; *stigma* simple or compound. *Fruit* a membranaceous utricle. *Seeds* lentiform, pendulous; *testa* crustaceous; *albumen* central, farinaceous; *embryo* curved round the circumference; *radicle* next the hilum; *plumula* inconspicuous.

Herbs or *shrubs*. *Leaves* simple opposite or alternate. *Flowers* in heads or spikes, occasionally diclinous, generally monoclinalous.

1. AMARANTHUS. Linn.

Monoecious. *Perianth* 2—5-leaved. STERILE FL. *Stamens* 3—5. FERTILE FL. *Styles* 3. *Capsule* 1-celled, opening transversely all round. *Seed* 1.

Monoecia. Pentandria.

1. *A. lividus* Linn. : stem erect; leaves elliptic, retuse; flowers clustered, triandrous, in rounded spikes.

HAB. Cultivated grounds. N. S. Torr. June—Aug. ☉.—
Stem 2—3 feet high, smooth.

2. *A. hybridus* Linn. : leaves ovate-lanceolate; flowers pentandrous; perianth subulate; racemes decompound, erect, crowded.

HAB. Near gardens, &c. N. Y. to Car. June—Sept. ☉.—
Stem 2—3 feet high. Introduced. ?

3. *A. blitum* Linn. : stem diffuse; leaves ovate, retuse; flowers triandrous, three-leaved; racemes somewhat spiked.

HAB. In and about gardens. N. S. June—Sept. ☉.—Introduced.

4. *A. spinosus* Linn. : axils spiny; racemes terminal, compound; flowers pentandrous.

HAB. Road sides. June—Sept. ☉.—*Stem* diffuse, generally coloured. Introduced.

5. *A. retroflexus* Linn. : branches pubescent ; leaves ovate, undulate ; racemes erect, much compounded ; flowers pentandrous.

HAB. Among rubbish, &c. Penn. to Virg. Aug. ☉. Pursh.

6. *A. pumilus* Nutt. : stem diffuse, smooth ; leaves ovate, obtuse, smooth and fleshy, often retuse ; flowers pentandrous, in axillary clusters.

HAB. Sandy beach. N. Y. Aug. ☉.—Stem a foot high, somewhat decumbent. Flowers green.

ORDER XCVIII. CHENOPODEÆ. De Cand. Lind.

Perianth deeply divided, sometimes tubular at the base, persistent. *Stamens* inserted into the base of the calyx, opposite its segments and equal to them in number or fewer. *Ovary* single, superior, or occasionally adhering to the tube of the calyx. *Style* 2—4-divided, rarely simple ; *stigmas* simple. *Fruit* membranous, not valvular, sometimes berried. *Seed* erect ; *embryo* curved round farinaceous albumen, or spiral, or doubled together without albumen ; *radicle* next the hilum ; *plumula* inconspicuous.

Herbs or *undershrubs*. *Leaves* alternate, without stipules, occasionally opposite. *Flowers* small, sometimes polygamous.

1. CHENOPODIUM. Linn.

Flowers perfect. *Perianth* 5-cleft, closing upon but not wholly enveloping the fruit. *Stamens* 5. *Styles* 2.

Pentandria. Digynia.

* *Leaves* ovate or rhomboid, often toothed or lobed.

1. *C. bonus henricus* Linn. : leaves triangular, sagittate, very entire ; spikes compound, peduncled, crowded, terminal and axillary, erect, leafless.

HAB. N. Y. Muhl. June. 24.—Stem a foot high, striate. Leaves large, dark green. Flowers green. Good King Henry.

2. *C. rhombifolium* Muhl. : leaves triangular-rhombic, acute, repandly toothed ; upper ones lanceolate, toothed, cuneate at base ; racemes axillary, erect, leafless.

HAB. Penn. Muhl. June. ☉.—Flowers in short simple racemes.

3. *C. rubrum* Linn. : leaves rhomboid-triangular, deeply toothed and sinuate ; racemes erect, compound, leafy.

HAB. Waste places. N. S. Aug. ☉.—Stem 2 feet high, reddish. Racemes very compound, intermixed with small leaves. Introduced.

4. *C. hybridum* Linn. : leaves cordate, angularly toothed, acuminate; racemes much branched in a somewhat cymose manner, divaricate, leafless.

HAB. Waste places. N. S. July, Aug. ☉.—Stem 2—3 feet high, slender, with large and bright green leaves. Flowers in compound clusters, remote from the leaves. Introduced.

5. *C. album* Linn. : leaves ovate, inclining to rhomboid, jagged, entire at the base; upper ones perfectly entire; racemes branched, somewhat leafy; seed very smooth.

b. viride Pursh : leaves greener and more entire; racemes more branched, a little leafy.—*C. viride* Linn.

HAB. Waste grounds. N. S. July, Aug. ☉.—Stem 2 feet high. Leaves covered with a mealy substance. Racemes somewhat branched, conglomerate. *Lamb's-quarters.*

6. *C. ambrosioides* Linn. : leaves lanceolate, remotely toothed; racemes simple, axillary, leafy.

HAB. Road sides. N. S. Aug., Sept. ☉.—Stem 18 inches high, much branched, somewhat pubescent. Leaves on short petioles. Flowers green, in erect spikes. *Sweet Pigweed.*

7. *C. botrys* Linn. : leaves oblong, pinnatifid-sinuate; racemes naked, many-cleft, very large; flowers distinct, on short pedicels.

HAB. Waste places. N. S. July—Sept. ☉.—Stem short, branching, somewhat viscid. Flowers in numerous short axillary racemes covering the ends of the branches.—Whole plant has a strong smell. *Jerusalem Oak.*

8. *C. anthelminticum* Linn. : leaves oblong-lanceolate, nearly sessile, coarsely toothed; spikes long, interrupted, leafless, axillary and terminal; style 3-cleft.

HAB. Fields. N. S. Aug. 2l.—Stem 1 1-2—2 feet high, much branched. Racemes long and slender, axillary and terminal. *Worm-seed.*

9. *C. glaucum* Linn. : leaves oblong, repand, smooth, glaucous beneath; spikes simple, naked, glomerate, terminal and axillary.

HAB. In N. Y. Muhl. ☉.—Stem diffuse, thick. Racemes short, leafless.

** *Leaves linear, fleshy.*

10. *C. maritimum* Linn. : leaves linear, subulate, fleshy, semi-cylindrical; flowers in sessile axillary clusters; stamens shorter than the petals.—*Salsola salsa* Mich. Pursh.—*S. linearis* Ell.

HAB. Salt meadows. Can. to Car. Aug., Sept. ☉.—Stem 1 1-2—2 feet high, branched, very leafy. Flowers in small axillary glomerules.

2. ATRIPLEX. Linn.

Flowers polygamous. • *Perianth* single, 5-parted. *Sta-*

mens 5. *Style* 2-parted. *Fruit* depressed, covered by the calyx. *FEMALE FL.* *Perianth* 2-parted. *Stamens* none.

Pentandria. Digynia.

1. *A. halimus* Linn. : stem frutescent ; leaves alternate or opposite, oblong-subrhomboid, entire, decurrent into the petiole.

HAB. New-Jersey. Muhl. ♀.

2. *A. laciniata* Pursh : stem herbaceous, diffuse, pubescent towards the summit ; leaves triangular, deeply toothed, white pubescent beneath ; lower ones opposite ; perfect flowers tetandrous ; perianth of the fruit rhomboid, acute, entire.—*A. laciniata* var. *americana* Torr.

HAB. Salt marshes. N. Y. to Car. June—Aug. ☉.—*Stem* mostly procumbent. *Leaves* covered with small grayish scales. *Flowers* in axillary clusters. *Sea Orache.*

3. *A. patula* Linn. : stem herbaceous, spreading ; leaves triangular-hastate, acuminate, smooth above, irregularly toothed ; the upper ones entire ; perianth of the fruit submuricate on the sides.

HAB. N. Y. to Car. Aug. ☉.—*Stem* prostrate, 1—2 feet long. *Leaves* on petioles nearly an inch long. *Flowers* clustered on axillary and terminal spikes.

4. *A. arenaria* Nutt. : stem herbaceous, spreading ; leaves oblong-ovate, subsessile, silvery-mealy beneath, very entire ; upper ones acute or acuminate ; perianth of the fruit muricate, dentate, retuse.

HAB. Sea coast. N. J. to Car. Aug., Sept. ☉.—*Stem* a foot high, angular, much branched. *Lower leaves* often cuneate. *Flowers* monoecious ; the sterile ones in short glomerate spikes at the end of the branches ; the fertile ones in axillary clusters.

5. *A. hortensis* Linn. : stem erect, herbaceous ; leaves triangular, dentate, green on both sides ; perianth of the fruit ovate, reticulate, entire ; flowers in terminal interrupted racemes or spikes.

HAB. Cultivated grounds. N. S. ; rare. Torr. July. ☉.—*Stem* 3—4 feet high. *Leaves* 2—3 inches long. *Flowers* green. Introduced.

3. ACNIDA. Linn.

Dioecious. *STERILE FL.* *Perianth* 5-parted. *Stamens* 5. *FERTILE FL.* *Perianth* 3-parted. *Styles* none. *Stigmas* 3—5, sessile. *Capsule* 1-seeded. *Dioecia. Pentandria.*

1. *A. cannabina* Linn. : leaves ovate-lanceolate ; capsules smooth, acutely angled.

HAB. Marshes. Can. to Flor. July, Aug. ☉.—*Stem* 3—6 feet high, slightly angled. *Leaves* alternate, ribbed, 2—5 inches long, petioled. *Flowers* small, green, in large axillary and terminal panicles. *Water Hemp.*

2. *A. ruscocarpa* Mich. : leaves oval-lanceolate ; capsules obtusely angled, rugose.

HAB. Marshes. Can. to Flor. Nutt. July. ☉.—Plant 6—8 feet high. Stem angled.

4. SALICORNIA. Linn.

Perianth single, turbinate, fleshy, closed. *Stamens* 1—2. *Style* 1, bifid. *Utricle* included in the enlarged perianth.

Monandria. Monogynia.

1. *S. herbacea* Linn. : annual ; stem erect or branched ; joints compressed, notched at the summits ; spikes peduncled, cylindrical, slightly tapering at the extremity ; perianth truncated—and *S. virginica* Linn. Pursh.

HAB. Sea coast and salt marshes. N. Y. to Car. Sept. ☉.—Plant destitute of leaves. Stem 6—10 inches high, branched. Flowers very minute, in threes at each joint.

Herbaceous Samphire.

2. *S. ambigua* Mich. : perennial, procumbent, branching ; joints crescent-shaped, small ; spikes opposite and alternate ; calyx truncate.

HAB. Salt meadows. N. J. to Car. July, Aug. ♂ or ♀.—Stem procumbent and ascending. Anthers purplish-yellow.—Resembles *S. fruticosa* of Linnæus. *Shrubby Samphire.*

5. SALSOLA. Linn.

Flowers perfect. *Perianth* 5-cleft, persistent, enveloping the fruit with its base, and crowning it with its enlarged limb. *Stamens* 5. *Styles* 2. *Embryo* spiral.

Pentandria. Digynia.

1. *S. soda* Linn. : herbaceous, smooth ; branches ascending ; leaves semi-terete, rather acute ; fructiferous perianth transversely connate in the middle, somewhat membranaceous.

HAB. In New-York. Muhl.

Saltwort.

2. *S. tragus* Linn. : herbaceous, spreading, smooth ; leaves subulate, spinose, fleshy ; flowers solitary, axillary, bracteate ; perianth subovate ; margin flattened, discoloured.

HAB. N. J. and Md. Muhl. July. ☉.—Dr. Torrey thinks Muhlenberg's plant is *S. kali*.

3. *S. kali* Linn. : herbaceous, decumbent ; leaves subulate, spinose, rough ; flowers axillary, solitary ; fruit-bearing perianth with a scarioid margin.

b. caroliniana Nutt. : leaves dilated ; perianth with a broader margin ; stem smooth.—*S. caroliniana* Walt. Mich.

HAB. Sea coast. N. Y. to Car. Aug, Sept. ☉.—Stem much branched, diffuse. Flowers succulent, sessile, with 2 or 3 bracts at the base of each.

6. BLITUM. Linn.

Perianth 3-cleft. *Stamens* 1. *Styles* 2. *Seed* 1, covered by the calyx, which becomes a berry. *Monandria. Digynia.*

1. *B. capitatum* Linn.: procumbent; leaves triangular-hastate; heads of flowers alternate, in a leafless terminal spike.

HAB. Fields and margins of swamps. N. Y. to Virg. N. to Subarc. Amer. June, July. ☉.—*Stem* a foot high, branched. *Heads* round, sessile, consisting of numerous minute flowers, becoming red, resembling a strawberry.—Abundant near Rome, N. Y. *Strawberry Blite.*

2. *B. virgatum* Linn.: leaves triangular-hastate; heads scattered, lateral.

HAB. Fields, &c. N. S. June. ☉.—*Leaves* with large sinuate teeth. *Heads* of flowers axillary, always lateral, becoming red. Introduced.

3. *B. maritimum* Nutt.: perianth membranaceous; clusters axillary, spiked, naked; leaves lanceolate, attenuated at each extremity, incisely toothed.

HAB. Salt marshes near N. Y. Aug. ☉.—*Stem* erect, 1—2 feet high, much branched. *Leaves* with a few large teeth, succulent. *Calyx* not becoming red.—Resembles an *Atriplex*.

ORDER XCIX. PHYTOLACCEÆ. Lind.

Perianth 4—5-petaloid leaves. *Stamens* either indefinite, or, if equal to the number of the divisions of the calyx, alternate with them. *Ovary* of 1 or several cells, each containing 1 ascending ovule. *Styles* and *stigmas* equal in number to the cells. *Fruit* berried or dry, indehiscent. *Seeds* ascending, solitary; *embryo* cylindrical, curved round mealy *albumen*; *radicle* next the hilum.

Undershrubs or *herbs*. *Leaves* alternate, without stipules, often with pellucid dots.

1. PHYTOLACCA. Linn.

Perianth 5-parted, petaloid. *Stamens* 7—20. *Styles* 5—10. *Berry* superior, 10-celled; cells 1-seeded.

Dexandria. Decagynia.

P. decandra Linn.: leaves ovate, acute at each end, alternate, petiolate; flowers in simple racemes, with 10 stamens and 10 styles; globose-depressed, purple when mature.

HAB. Borders of fields. Can. to Car. June—Oct. 2f.—*Root* very large. *Stem* 4—8 feet high, succulent, purplish. *Flowers* whitish, in long pedunculated racemes. *Peduncles* red. *Berries*

globose-depressed, purple when mature.—The root is a violent emetic. *Big. Med. Bot.* i. 39. *Poke Weed.*

2. RIVINA. *Linn.*

Perianth 4-parted, persistent. *Stamens* 4, 8 and 12. *Style* 1. *Berry* 1-seeded. *Seed* lentiform, scabrous.

Tetrandria. Monogynia.

R. lavis *Linn.* : leaves alternate, on long petioles, ovate, acuminate, smooth ; flowers in simple axillary racemes.

HAB. Penn. *Muhl.* Sept. 5.—A shrub with the habit of *Phytolacca decandra*. Leaves alternate, entire. Flowers in axillary racemes.

ORDER C. POLYGONEÆ. *Lind.*

Perianth divided, inferior ; æstivation imbricate. *Stamens* definite, inserted in the bottom of the perianth ; *anthers* bursting longitudinally. *Ovary* superior, with a single erect ovule. *Styles* or *stigmas* several. *Fruit* a nut, usually triangular, naked or covered by the enlarged perianth. *Seed* with farinaceous albumen, rarely with scarcely any ; *embryo* inverted, generally on one side ; *radicle* superior.

Herbs, rarely *shrubs*. *Leaves* alternate, sheathing at the base or adhering there to intrafoliaceous stipules, revolute when young. *Flowers* occasionally *diclinous*.

1. POLYGONUM. *Linn.*

Perianth 4—6-parted, petaloid, persistent. *Stamens* 5—9, often 8. *Styles* 2—3. *Nut* one-seeded, mostly triangular.

Octandria. Trigynia.

* *Flowers* axillary. *Stamens* 8. *Stigmas* 3. POLYGONUM.

1. *P. aviculare* *Linn.* : stem procumbent, herbaceous ; leaves elliptic-lanceolate, rough on the margin ; nerves of the stipules distant.

HAB. Waste places. N. Y. to Car. N. to Subarc. Amer. May—Sept. ☉.—*Stem* much branched, nearly erect. *Leaves* varying much in size and shape.—When growing near the sea the leaves are glaucous and rather fleshy, and then forms *P. glaucum* of Nuttall. This fact is noticed by Dr. Smith, in his *Fl. Brit.*, and by Dr. Greville in his *Flora Edinensis*. *Knot Grass.*

2. *P. erectum* *Muhl.* : stem mostly erect ; leaves broad, oval, petiolate, smooth ; flowers pentandrous.—*P. aviculare* var. *latifolium* *Mich. Torr.*

HAB. Near cultivated grounds. N. S. N. to Subarc. Amer. Aug. 24.—*Stem* 1—3 feet high. *Flowers* greenish.—Dr. Dar-

lington concurs in the opinion expressed by Muhlenberg, that this is a distinct species.—*Fl. Ces.*

3. *P. tenue* Mich.: stem slender, erect, branched, acutely angled; leaves linear, acuminate, straight; stipules tubular, lacerate, with the segments finely attenuate at the extremity; flowers alternate, subsolitary, on very short pedicels.—*P. linifolium* Muhl.

HAB. On rocks. N. S. July. ☉.—Stem 6–10 inches high. Flowers small, white, solitary and in pairs. Nut acutely triangular, shining, black.

** Flowers in terminal solitary spikes. Stamens 9. Stigmas 3. BISTORTA.

4. *P. viviparum* Linn.: stem simple; spike linear, solitary; leaves linear-lanceolate, revolute on the margin; the lower ones elliptical, petiolate.

HAB. Can. and White Hills, N. H. N. to Arc. Amer. Aug. 2f.—Stem 6 inches high. Spike often bearing red bulbs instead of flowers.

*** Flowers in axillary or terminal spikes. Stamens 5–8. Stigmas mostly 2. PERSICARIA.

5. *P. punctatum* Ell.: stem branched, sometimes decumbent at base; leaves lanceolate, with pellucid punctures, scabrous on the margin and midrib; stipules slightly hairy, ciliate; spikes few-flowered, filiform, at first cernuous; flowers octandrous, glandular-punctate; styles 3-parted.—*P. hydropiper* Mich.—*P. hydropiperoides* Pursh.

HAB. Inundated grounds. Can. to Car. Aug., Sept. ☉.—Stem 1–2 feet high. Flowers white, in one or two slender simple spikes. Nut 3-angled. Plant very acrid. Water Pepper.

6. *P. mite* Pers.: stem hairy at the summit; leaves narrow-lanceolate, acuminate, entire, somewhat hairy; stipules hairy, with long ciliæ; flowers octandrous, in crowded spikes; styles 3-parted.—*P. hydropiperoides* Mich.—*P. barbatum* Walt.

HAB. Ditches and ponds. Can. to Car. July–Sept. ☉.—Stem 18 inches high. Flowers purple, in somewhat crowded spikes. Leaves not acrid.

7. *P. virginianum* Linn.: stem simple, angular, hairy towards the top; leaves broad-lanceolate, acuminate, with fringed serratures; flowers 4-cleft, unequal, remote, pentandrous; styles 2; spike very long, slender, naked.—*P. bistorta* Walt.

HAB. Shady woods. Can. to Flor. W. to Miss. July, Aug. 2f.—Stem 2–4 feet high. Leaves large, with hairy stipules. Flowers white, in a very long and slender spike.

8. *P. amphibium* Linn.: stem nearly erect; leaves petiolate, oblong-lanceolate, sometimes cordate at base; flowers in dense terminal spikes, pentandrous; styles bifid.—*P. coccineum* var. *terrestre* Pursh.

b. aquaticum Hook.: stem spreading on the surface of water; leaves ovate-lanceolate, cordate; spike cylindrical-oblong.—*P. natans* Eaton.

HAB. Borders of swamps and ponds. N. S. W. to Miss. July.

24.—*Stem* 8—12 inches long. *Flowers* large, reddish, in an ovate spike.—Var. *b.* has the stems long and the leaves broad-cordate and floating ; but it passes into the former variety.

9. *P. pennsylvanicum* Linn. : stem with tumid joints, smooth ; leaves lanceolate, slightly hairy, petioled ; stipules smooth and naked ; flowers in crowded oblong spikes, octandrous ; style 2-cleft ; peduncles hispid.

HAB. Margins of ponds and ditches. N. Y. to Car. July—Sept. ☉.—*Stem* 2—4 feet high, geniculate. *Flowers* large, reddish, in crowded spikes.

10. *P. lapathifolium* Linn. : stem geniculate, smooth ; leaves ovate-lanceolate, on short petioles, often hoary beneath ; spikes numerous, rather crowded, erect ; peduncles scabrous ; flowers hexandrous ; styles 2.—*P. incarnatum* Ell.

HAB. Ditches and swamps. N. Y. to Car. Aug., Sept. ☉.—*Stem* 2—3 feet high. *Flowers* white or pale red, smaller than in the former.

11. *P. persicaria* Linn. : stem erect ; leaves on short petioles, lanceolate, the upper surface marked with dark coloured spots ; stipules smooth, ciliate ; spikes dense, terminal, ovate-oblong, erect ; flowers hexandrous ; styles bifid.

HAB. Wet grounds. July, Aug. ☉.—*Stem* 12—18 inches high, branched, smooth, often red. *Flowers* reddish, in erect oblong terminal spikes. *Ladies' Thumb.*

12. *P. orientale* Linn. : stem erect ; leaves very large, petioled, ovate, acuminate, minutely pubescent ; stipules hairy, hypocateriform ; flowers in crowded terminal spikes, hexandrous, digynous.

HAB. Old fields and roads sides. July, Aug. ☉.—*Stem* 4—5 feet high, branched, pubescent. *Flowers* large, crimson, in pendulous spikes.—Naturalized throughout the whole U. States.

**** *Flowers in paniced spikes. Perianth 5-parted. POLYGONELLA.*

13. *P. articulatum* Linn. : stem erect ; leaves linear, obtuse ; stipules short, truncate ; spikes paniculate, filiform, erect ; pedicels solitary, articulate near the base ; flowers perfect, octandrous, trigynous, nodding.

HAB. Sandy plains. N. S. W. to Michigan. Sept. ☉.—*Stem* 12 inches high, branched above. *Leaves* very small, linear. *Flowers* reddish-white, in spikes which are jointed by a succession of imbricate sheathing bracts.—A singular plant which should perhaps be separated from this genus.

***** *Flowers in racemose panicles. Leaves subcordate or sagittate. FAGOPYRUM.*

14. *P. sagittatum* Linn. : stem prostrate, square ; the angles awned with reversed prickles ; leaves sagittate, acute, nearly sessile ; flowers in small peduncled heads, octandrous ; styles 3-cleft.

HAB. Wet grounds. N. Y. to Flor. July, Aug. ☉.—*Stem*

long and slender. *Flowers* white, axillary and terminal, in small compact heads which are supported on long peduncles.

15. *P. arifolium* Linn. : stem prostrate, square, the angles with reversed prickles ; leaves on long petioles, hastate, with the lobes acute ; spikes few-flowered ; flowers hexandrous, distinct ; styles bifid.

HAB. Wet grounds. Can. to Car. Aug., Sept. ☉.—*Stem* flexuous, prostrate or climbing. *Flowers* pale red, in terminal and axillary spikes.

16. *P. convolvulus* Linn. : stem long, climbing, angular, somewhat rough ; leaves petioled, oblong, hastate-cordate, with the lobes spreading and acute ; flowers in lax spikes, octandrous ; styles 3-cleft ; segments of the perianth bluntly keeled.

HAB. Cultivated grounds. Can. to Car. July—Sept. ☉.—*Stem* long, climbing. *Flowers* whitish or reddish, in terminal interrupted spikes or racemes.

17. *P. cilinode* Mich. : stem angular, climbing or prostrate, pubescent ; leaves petioled, cordate ; stipules somewhat acute, ciliate at the base ; panicles somewhat leafy ; flowers octandrous ; styles 3-cleft ; segments of the perianth bluntly keeled.

HAB. Fields. N. S. July, Aug. ☉.—A variety of the last. ?

18. *P. scandens* Linn. : stem climbing, smooth ; leaves broad-cordate, with the sinus broad and obtuse ; stipules truncate, naked ; flowers large, in axillary racemes, octandrous, trigynous ; segments of the perianth winged.

HAB. Shady woods. N. Y. to Car. W. to Miss. July, Aug. ☉.—*Stem* purple. *Flowers* white or reddish, in axillary racemes.

19. *P. fagopyrum* Linn. : stem erect, unarmed ; leaves cordate, sagittate ; racemes paniced ; angles of the seed equal.

HAB. Fields ; remaining as a weed where it has been cultivated. June. ☉. *Buckwheat.*

2. RUMEX. Linn.

Perianth 6-leaved. *Stamens* 6. *Styles* 3. *Nut* triquetrous ; covered by the 3 interior valviform leaves of the perianth. *Stigmas* many-cleft. *Hexandria. Trigynia.*

* *Flowers* all perfect, containing both stamens and pistils. LAPATHUM.

† *Inner valves* of the perianth entire.

1. *R. aquaticus* Linn. : valves ovate, entire, all of them granuliferous ; leaves lanceolate, acute, the lower ones on long petioles and cordate at base.

HAB. Ponds and ditches. N. S. July, Aug. 24.—*Root* large and very astringent. *Stem* 3—4 feet high. *Flowers* whorled, in a terminal leafy panicle. Introduced. ? *Water Dock.*

2. *R. crispus* Linn. : valves very large, cordate, entire, veined, granuliferous ; leaves lanceolate, acute, waved at the margin.

HAB. Fields. Can. to Car. June, July. 2f.—Stem 2—3 feet high, furrowed. Flowers in crowded whorls, on pedicels.—Distinguished from the former by its large membranaceous valves. Introduced. *Curled Dock.*

3. *R. sanguineus* Linn.: valves small, oblong, one or more granuliferous; leaves lanceolate, somewhat cordate, petioled, smooth, mostly with red veins.

HAB. Fields and road sides. Can. to Car. June, July. 2f.—Stem 3 feet high. Root leaves large, with blood-red veins. Flowers in small distant whorls. Introduced. *Bloody Dock.*

4. *R. britannicus* Linn.: valves all entire and granuliferous; leaves broad-lanceolate, flat, smooth; sheaths obsolete; whorls of flowers leafless.

HAB. Swamps. Can. to Car. June, July. 2f.—Root fusiform, yellow internally. Stem 3 feet high. Leaves large, on petioles. Flowers in a compound terminal panicle, polygamous.

Yellow-rooted Water Dock.

5. *R. verticillatus* Linn.: valves entire, all of them granuliferous; flowers whorled, in long nearly simple leafless racemes; leaves lanceolate, acute, flat; sheaths cylindrical.

HAB. Swampy grounds. N. S. June, July. 2f.—Stem 2 feet high. Leaves long, lanceolate, narrow. Whorls few-flowered. Pedicels half an inch or more in length.

†† Inner valves of the perianth toothed.

6. *R. acutus* Linn.: valves oblong, somewhat toothed, all granuliferous; leaves cordate-oblong, acuminate; whorls numerous, small, leafy.

HAB. Moist grounds. N. S. June. 2f.—Stem 2—3 feet high. Introduced.

7. *R. pallidus* Big.: valves ovate, entire, hardly larger than the grain; leaves linear-lanceolate, acute; spikes slender.

HAB. Salt marshes. Mass. June. 2f.—Stems numerous, ascending, slightly furrowed. Leaves smooth, petioled, more or less waved on the margin. Spikes slender. Fruit crowded, the valves acute.

8. *R. obtusifolius* Linn.: valves ovate, toothed, one chiefly granuliferous; leaves cordate-oblong, obtuse, somewhat crenate and waved; upper ones narrower and more acute; stem roughish.

HAB. Woods and fields. N. S. July. 2f.—Stem 2—3 feet high. Leaves very large. Flowers in long nearly leafless racemes. Introduced.

** Flowers dioecious. ACETOSA.

9. *R. acetosella* Linn.: leaves lanceolate, hastate; lobes acute, spreading; racemes paniculate; valves of the fruit grainless.

HAB. Fields, &c. Throughout the U. S. June, July. 2f.—Stem 6—12 inches high.—The plant has a pleasant acid taste.

Sheep Sorrel.

ORDER CI. LAURINEÆ. *Juss. Lind.*

Perianth 4—6-cleft. *Stamens* definite, perigynous, opposite the segments of the perianth and usually twice as numerous, 3 innermost ones sterile, or wanting; 6 outer ones scarcely ever abortive; *anthers* adnate, 2—4-celled, the cells bursting by a longitudinal persistent valve from the base to the apex; the outer anthers valved inwards, the inner outwards. *Glands* usually present at the base of the inner filaments. *Ovary* superior, single; *style* simple; *stigma* obtuse. *Fruit* a berry or drupe, naked or covered. *Seed* without albumen; *embryo* inverted; *cotyledons* large, plano-convex, peltate near the base. *Plumula* conspicuous, 2-leaved.

Trees, often large. *Leaves* without stipules, alternate.

1. LAURUS. *Linn.*

Perianth 4—5-cleft, equal. *Stamens* 8—12, arranged in a double row; outer ones all fertile; alternate inner ones fertile and furnished at base with 2 appendices or glands, (nec-tary.) *Drupe* fleshy. *Enneandria. Monogynia.*

* *Leaves perennial.*

1. *L. carolinensis* Mich.: leaves oval-lanceolate, coriaceous, glaucous beneath; peduncles simple, terminated with a few-flowered fascicle; outer segments of the calyx half as long as the inner.

HAB. In the Great Cypress Swamp, Sussex county, Delaware; its most northern boundary. *Nutt.* S. to Geor. June. *h.*—A large shrub or small tree. *Flowers* in small clusters, polygamous, pale yellow. *Drupe* dark blue.

** *Leaves deciduous. Flowers dioecious.*

2. *L. benzoin* Linn.: leaves obovate, lanceolate, wedgeform at base, entire, whitish and subpubescent beneath; flowers in clustered umbels, appearing before the leaves; buds and pedicels smooth.—*L. pseudo-benzoin* Mich.

HAB. Banks of streams. Can. to Geor. W. to Miss. April, May. *h.*—Shrub 6—10 feet high. *Flowers* pale yellow. *Drupe* roundish, scarlet. *Benzoin. Spice-wood.*

3. *L. sassafras* Linn.: leaves entire, lanceolate-ovate, or 2—3-lobed, under surface prominently veined; flowers in clustered umbels, appearing before the leaves; buds, younger branches and under surface of the leaves, pubescent.

HAB. River banks. Can. to Geor. April. *h.*—Varies in size from that of a large shrub to a large tree. *Leaves* various, glabrous or pubescent. *Flowers* yellow.—This and the foregoing species possess medicinal powers. See Dr. Brockenbrough's In-

augural Thesis, 1804. *Barton's Collection for a Mat. Med. of the U. S. and Big. Med. Bot.* ii. 142. *Sassafras*.

ORDER CII. ELÆAGNEÆ. *Juss. Lind.*

Flowers dioecious, rarely monoclinal. **STERILE FL.** *Stamens* 3, 4 or 8, sessile; *anthers* 2-celled. **FERTILE FL.** *Perianth* tubular, persistent; the *limb* entire, or 3—4-toothed. *Ovary* superior, simple, 1-celled; *ovule* solitary, ascending, stalked; *style* short; *stigma* simple, subulate, glandular. *Fruit* crustaceous, enclosed within the perianth, becomes succulent. *Seed* erect; *embryo* straight, surrounded by very thin fleshy *albumen*; *radicle* short, inferior; *cotyledons* fleshy.

Trees or *shrubs*, covered with leprous scales. *Leaves* alternate or opposite, entire, without stipules.

1. SHEPHERDIA. *Nutt.*

Dioecious. **STERILE FL.** *Perianth* 4-cleft. *Stamens* 8, included, alternating with 8 glands. **FERTILE FL.** *Perianth* 4-cleft, campanulate, superior. *Style* 1. *Stigma* oblique. *Berry* 1-seeded. *Dioecia. Octandria.*

S. canadensis *Nutt.*: leaves oblong-ovate, nearly smooth above, stellately hairy and scaly beneath; the scales ferruginous and deciduous. —*Hippophae canadensis* *Willd. Pursh.*

HAB. Can. and Western part of N. Y. N. to Arc. Amer. July. *h.*—A shrub 6—8 feet high. *Flowers* minute. *Berries* scaly, sweetish.

ORDER CIII. THYMELEÆ. *R. Brown. Lind.*

Perianth inferior, tubular, coloured; the limb 4- seldom 5-cleft; æstivation imbricate. *Stamens* definite, periginous, usually 8, sometimes 4 or 2; *anthers* 2-celled. *Ovary* solitary; *style* 1; *stigma* undivided. *Fruit* a nut or drupe; *albumen* none, or thin and fleshy; *embryo* straight, inverted; *cotyledons* plano-convex.

Shrubs with a tough bark. *Leaves* alternate or opposite, entire.

1. DIRCA. *Linn.*

Perianth coloured, campanulate; limb obsolete. *Stamens* 8, inserted into the perianth, unequal. *Style* 1. *Berry* 1-seeded. *Octandria. Monogynia.*

D. palustris Linn.

HAB. Woods. Can. to Geor. April. 24.—Shrub 2—4 feet high, with tough branches. *Leaves* alternate, ovate, petioled, entire, obtuse. *Flowers* appearing before the leaves, yellow.—The bark has a sweetish taste, and when chewed excites a burning sensation in the fauces. *Leather Wood.*

ORDER CIV. SANTALACEÆ. *Brown. Lind.*

Perianth superior, 4 or 5-cleft, half coloured, with valvate æstivation. *Stamens* 4 or 5, opposite the segments of the perianth and inserted into their bases. *Ovary* 1-celled, with from 1—4 ovules; *style* 1; *stigma* often lobed. *Fruit* a nut or drupe. *Seed* solitary; *albumen* fleshy; *embryo* minute; *radicle* superior.

Trees or *shrubs* sometimes *undershrubs* or *herbs*. *Leaves* alternate, undivided.

1. NYSSA. *Linn.*

Dioecious. STERILE FL. *Perianth* 5-parted. *Stamens* 5—10. FERTILE FL. *Perianth* 5-parted. *Stamens* 5. *Style* 1. *Drupe* inferior. *Dioecia. Pentandria.*

1. *N. multiflora* Walt. : leaves oval-lanceolate, very entire, acute at each end; the petiole margined and midrib villous; fertile peduncles many-flowered.—*N. villosa* Mich.

HAB. Low woods. Can. to Car. June. 7.—A tree 30—50 feet high. *Flowers* in somewhat umbellate clusters, small, green. *Drupe* nearly spherical, very dark blue.

Sour or Black Gum.

2. *N. biflora* Walt. : leaves ovate-oblong, very entire, acute at each end, smooth; fertile peduncles 2-flowered; drupe oval-compressed.—*N. aquatica* Linn.

HAB. Swamps. N. S. S. to Car. June. 7.—A tree 30—50 feet high. Fertile *flowers* almost invariably 2. *Drupe* dark blue.—The woody fibres of this tree are remarkably interlocked, so as to render it difficult to be split; on this account it is much used in making naves for carriage wheels, &c.

Tupelo Tree. Swamp Hornbeam.

2. HAMILTONIA. *Willd.*

Polygamous. PERFECT FL. *Perianth* turbinate-campulate, 5-cleft. *Germ* immersed in the 5-toothed glandulous disk. *Style* 1. *Stigmas* 2—3, sublenticular. *Drupe* pyriform, 1-seeded, inclosed in the adhering base of the calyx. STERILE FL. resembling the perfect, except in wanting the pistil. *Pentandria. Monogynia.*

H. oleifera Muhl.—*Pyrolaria pubera* Mich.

HAB. Mountains. Penn. to Geor.; rare. May, June. ♀.—
Shrub 4—6 feet high with a very deep root. Leaves oblong-obovate, entire, acuminate, 2—3 inches long, petiolate, pubescent when young. Flowers in a terminal raceme, small, greenish-yellow.—Whole plant more or less oily. Oil Nut.

3. THESIUM. Linn.

Perianth 4—5-cleft. *Stamens* 4—5, opposite the lobes of the perianth, villous externally. *Style* simple, 1-seeded, crowned by the persistent perianth. *Pentandria. Monogynia.*

T. umbellatum Linn.: stem round and erect; leaves oblong-ovate, obtuse, smooth; panicles terminal, subcorymbed.—*Comandra umbellata* Nutt.—*Hamiltonia umbellata* Spreng.

HAB. Rocky hills. Subarc. Amer. to Geor. W. to Miss. July, Aug. 21.—Stem 8—12 inches high. Leaves alternate, entire, sessile, mucronate. Flowers white, in a terminal corymb.—It is still doubtful whether this deserves to be separated from *Thesium*. It appears to agree very well with *Hamiltonia*.

Bastard Toad-flax.

ORDER CV. ARISTOLOCHIÆ. Juss. Lind.

Flowers monoclinal. *Perianth* superior, tubular, 3-cleft, regular or very unequal; aestivation valvate. *Stamens* 6—12, epigynous, distinct or adhering to the style and stigmas. *Ovary* inferior, 3—6-celled; *ovules* numerous; *style* simple; *stigmas* radiating, as numerous as the cells of the ovary. *Fruit* dry or succulent, 3—6-celled. *Seeds* numerous; *embryo* minute, placed in the base of fleshy *albumen*.

Herbs or *shrubs*. Leaves alternate, simple, often with leafy stipules.

1. ARISTOLOCHIA. Linn.

Perianth tubular, ventricose at base, dilated at the apex and ligulate. *Anthers* 6, subsessile, inserted into the style. *Stigma* 6-cleft. *Capsule* 6-sided, 6-celled.

Gynandria. Hexandria.

1. *A. siphon* L'Herit: stem twining; leaves cordate, acute; peduncles 1-flowered, furnished with an ovate bract; corol ascending, the border 3-cleft and equal.

HAB. Mountains. Penn. to Car. June. ♀.—A vine climbing over trees of large size. Leaves very large, alternate, sprinkled with hairs. Flowers solitary, brown. Dutchman's Pipe.

2. *A. serpentaria* Linn.: stem flexuous; leaves cordate, oblong, acuminate; peduncles radical; lip of the corol lanceolate.

HAB. Shady woods. Penn. to Car. June. 2f.—Stem 8—12 inches high, pubescent, geniculate and knotty at base. Flowers few, purplish-brown.—Possesses valuable medicinal properties. See *Big. Med. Bot.* iii. 82. *Virginia Snakeroot.*

2. ASARUM. Linn.

Perianth campanulate, 3-cleft. *Stamens* 12, placed upon the ovary; *anthers* adnate with the middle of the filaments. *Style* short. *Stigma* stellate, 6-lobed. *Capsule* 6-celled.

Gynandria, *Decandria*:

1. *A. canadense* Linn.: leaves by pairs, broad reniform; perianth woolly, cleft to the base; the segments sublanceolate, reflexed.—*A. carolinianum* Walt.

HAB. Woods. Can. to Car. W. to Miss. April. 2f.—Stem none. Leaves generally 2, with long and hairy petioles. Flower somewhat campanulate, solitary, on a short peduncle, sometimes nearly buried in the ground.—The root has an agreeable and aromatic flavor. *Wild Ginger.*

2. *A. virginicum* Mich.: leaves solitary, cordate, nearly round, glabrous, coriaceous; flower nearly sessile; perianth externally glabrous, short, campanulate.

HAB. Rocky woods. N. J. to Car. April. 2f.—Leaves spotted or clouded, smooth. Segments of the perianth obtuse.—Very similar in habit to the preceding.

ORDER CVI. EMPETREÆ. Nutt. Lind.

Flowers dioecious. *Perianth* consisting of 2—4 imbricated rows of hypogynous scales. *Stamens* equal in number to the scales and alternate with them; *anthers* roundish, 2-celled, the cells distinct, bursting longitudinally. *Ovary* superior, seated in a fleshy disk, 3—6 or 9-celled; *ovules* solitary, ascending; *style* 1; *stigma* radiating, multifid. *Fruit* fleshy, seated in the persistent perianth. *Seed* solitary, ascending; *embryo* taper in the axis of the fleshy albumen; *radicle* inferior.

Small acrid *shrubs*, with heath-like evergreen leaves without stipules, and minute *flowers* in their axils.

1. EMPETRUM. Linn.

Dioecious. *Perianth* consisting of 2 rows of scales. **STERILE FL.** *Stamens* 3, upon long filaments. **FERTILE FL.**

Style none, or very short. *Stigma* with 6—9 rays. *Berry* superior, globose, 6—9 seeded. *Dioecia. Triandria.*

E. nigrum Mich. : procumbent ; leaves oblong-obtuse, revolute on the margin.

HAB. White Hills. N. H. *Big. N. to Arc. Amer.* May, June.

h.—A low shrub with small and dense evergreen foliage, like that of the heaths. *Leaves* imbricate, oblong, obtuse. *Flowers* axillary, very small, reddish. *Berries* roundish, black.—Dr. Houghton has found it on the shores of Lake Superior.

ORDER CVII. EUPHORBIACEÆ. *Lind.*

Flowers monoecious or dioecious. *Perianth* lobed, inferior, with various glandular or scaly appendages ; (sometimes wanting.) **STERILE FL.** *Stamens* 1—12 ; *anthers* 2-celled. **FERTILE FL.** *Ovary* 1, superior, sessile or stalked ; *styles* 2—3 ; *stigmas* compound, or single with several lobes. *Fruit* consisting of 2—3 or more dehiscent cells, separating with elasticity from their common axis, sometimes indehiscent. *Seeds* suspended, arillate ; *embryo* enclosed in fleshy *albumen* ; *cotyledons* flat ; *radicle* superior.

Trees, shrubs or *herbs*, often abounding in acrid milk. *Leaves* simple, rarely compound, usually with stipules.

1. CROTONOPSIS. *Mich.*

Monoecious. **STERILE FL.** *Perianth* 5-parted, with 5 petaloid scales. *Stamens* 5. **FERTILE FL.** *Perianth* 5-parted. *Stamens* 3, twice bifid. *Capsule* 1-seeded, not opening. *Monoecia. Pentandria.*

C. linearis Mich. : stem erect, dichotomously branched ; leaves stellately pubescent above, hairy and covered with silvery scales beneath.

E. argentea Pursh.—*Friesia argentea Spreng.*

HAB. Swamps in sands. N. J. to Car. W. to Miss. June. ☉.

—*Stem* 12—18 inches high, covered like the leaves, with solitary scales. *Leaves* varying from linear-lanceolate to ovate, on short petioles. *Flowers* in terminal and axillary spikes, very minute.

2. PHYLLANTHUS. *Linn.*

Monoecious. **STERILE FL.** *Perianth* 5—6-parted. *Filaments* united. **FERTILE FL.** as the sterile. *Nectary* ? a 12-angled margin. *Styles* 3. *Capsule* 3-celled.

Monoecia. Monadelphica.

P. caroliniensis Walt. : stem erect ; branches distichous ; leaves alternate, oval, obtuse, smooth, somewhat distichous ; flowers few, (2—4) axillary, on pedicels, nodding.—*P. obovatus* Willd. Pursh. Torr.

HAB. Banks of streams. Penn. to Geor. July, Aug. ☉.—
Stem 12 inches high, with distichous branches. Flowers on short pedicels, axillary, nodding. Stamens 6, united at base.

3. RICINUS. Linn.

Monoecious. STERILE FL. *Perianth* 5-parted. *Stamens* numerous ; filaments united, branching. FERTILE FL. *Perianth* 3-parted. *Styles* 3, 2-parted. *Capsule* mostly echinate, 3-celled, 3-seeded. *Monoecia. Monadelphia.*

R. communis Linn. : stem herbaceous, glaucous-pruinose ; leaves peltate palmate ; lobes lanceolate, serrate ; capsule echinate.

HAB. Around plantations at the South. Aug., Sept. ☉.—Introduced. Cultivated extensively in various parts of the U. S. for the purpose of obtaining oil from the seed. *Castor-oil Bean.*

4. ACALYPHA. Linn.

Monoecious. STERILE FL. *Perianth* 3—4-parted. *Stamens* 8—16, united. FERTILE FL. *Styles* 3, 2-parted. *Capsule* 3-celled ; *cells* 1-seeded. *Monoecia. Monadelphia.*

1. *A. virginica* Linn. : pubescent ; leaves on short petioles, lanceolate-oblong, remotely and obtusely serrate ; involucre cordate, ovate, acuminate, toothed ; fertile flowers at the base of the sterile spike.

HAB. Road sides, &c. Can. to Car. June—Aug. ☉.—Stem 12—18 inches high, erect, pubescent. Involucre on a short peduncle, shorter than the leaves. Sterile flowers very small. *Capsule* hispid. *Three-seeded Mercury.*

2. *A. caroliniana* Walt. : leaves on long petioles, rhombic-ovate, acuminate, serrate, entire at base ; involucre cordate, toothed ; fertile flowers at the base of the sterile spike.

HAB. Fields. Penn. to Car. July, Aug. ☉.—Stem 9—18 inches high.—The *A. caroliniana* of Elliott is apparently a distinct species.

5. EUPHORBIA. Linn.

Monoecious. Rarely furnished with a perianth. Involucre monophyllous, campanulate, 8—10 toothed, the inner segments membranaceous and erect. STERILE FL. 12 or more. *Stamen* 1 ; filament articulated in the middle. FERTILE FL. solitary, stipulate, naked. *Stigmas* 3, 2-cleft. *Capsule* 3-lobed. *Monoecia. Monandria.*

* *Flowers in terminal fascicles.*

1. *E. dentata* Mich. : hairy ; leaves opposite, oval, dentate ; flowers crowded at the summit of the stem.

HAB. Shady rocks. Penn. to Tenn. July, Aug. ☉.—The upper leaves spotted.

2. *E. hypericifolia* Linn. : smooth, branching, erect-spreading ; branches divaricate ; leaves opposite, oval-oblong, slightly falcate, serrate ; corymbs terminal.

b. ? hirsuta Torr. : stem slender or hairy ; leaves oblong, smooth, serrulate.

HAB. Fields and road sides. Can. to Flor. Aug., Sept. ☉.—Stem erect, 1—2 feet high, very smooth. Leaves 3-nerved and spotted. Flowers small.—Var. *b.* is 8—12 inches high, much branched and purple.

3. *E. maculata* Linn. : erect-spreading or procumbent ; leaves opposite, serrate, oblong, hairy ; flowers axillary, solitary ; inner segments of the involucre coloured.

HAB. Near cultivated grounds. N. Y. to Car. Aug.—Oct. ☉.—Stem 6—12 inches long, generally purple. Leaves on short petioles, oblique at base, 3-nerved. Flowers crowded near the summit, but in reality solitary in each axil. *Spotted Spurge.*

4. *E. polygonifolia* Linn. : procumbent, branching, very smooth, succulent ; leaves oblong-ovate, linear-lanceolate, entire, obtuse, sometimes subcordate at base ; flowers solitary in the divisions of the stem : stipules simple.

HAB. Sands on sea shore. N. Y. to Car. July, to Sept. 24.—Stem 8 inches long. Stipules subulate and simple.

5. *E. ipecacuanha* Linn. : procumbent or nearly erect, small, smooth ; leaves opposite, obovate and lanceolate ; peduncles axillary, 1-flowered, elongated.

HAB. Sandy soil. N. J. to Car. June. 24.—Root very long and tapering. Stem short. Leaves sessile, varying in form from obovate to linear. Flowers solitary, on peduncles which are about as long as the leaves.

6. *E. portulacoides* Linn. : erect ; leaves entire, oval, retuse ; peduncles axillary, 1-flowered, as long as the leaves.

HAB. Sandy soils. Penn. June—Aug. 24.—Dr. Torrey thinks it may be a variety of *E. corollata*.

7. *E. dentata* Mich. : hairy ; leaves opposite, oval, dentate ; flowers crowded at the summit of the stem.

HAB. Shady rocks. N. S. Torr. Tenn. Mich. July, Aug. ☉.—Upper leaves spotted.

** *Flowers umbelled-involucrate.*

8. *E. pepus* Linn. : umbel 3-cleft, dichotomous ; involucels (floral leaves) ovate ; leaves entire, obovate, petioled.

HAB. Cultivated grounds. Penn. to Vir. July, Aug. ☉.—Floral leaves large. Flowers conspicuous.

9. *E. obtusata* Pursh : umbel 3-cleft, twice dichotomous ; involucels ovate, somewhat obtuse, subcordate ; leaves alternate, sessile, spatulate, serrulate, smooth ; capsules muricate.

HAB. Waste grounds. Can. to Vir. July, Aug. 2f.—Stem 12—18 inches high, branched at the top, simple below.

10. *E. mercurialina* Muhl. : stem weak and slender, simply 3-cleft; leaves opposite and ternate, subsessile, oval, entire; peduncles terminal, solitary, 1-flowered.

HAB. Shady rocky situations. Penn. Pursh. July, Aug. 2f.

11. *E. lathyris* Linn. : umbel 4-cleft, dichotomous; leaves opposite, lanceolate, entire.

HAB. Near gardens and cultivated grounds. N. S. July, Aug. 3f.—Introduced. *Mole Plant.*

12. *E. corollata* Linn. : umbel 5-cleft, 3-cleft, dichotomous; floral leaves and those of the stem oblong, obtuse; inner segments of the involucre petaloid, obovate.

HAB. Dry fields. Can. to Car. July, Aug. 2f.—Stem 1—2 feet high, erect, rarely branched. Leaves petioled, varying somewhat in form. Flowers in a terminal umbel, conspicuous.

13. *E. pilosa* Linn. : umbel 5-cleft, 3-cleft, bifid; floral leaves ovate; stem leaves lanceolate, somewhat hairy, serrulate at the summit; petals entire.

HAB. Wet woods. Can. to Vir. June, July. 2f.—Stem 1—3 feet high.—Found in Canada by Mr. Goldie.

14. *E. helioscopia* Linn. : umbel 5-cleft, 2-cleft, dichotomous; floral leaves obovate; stem leaves cuneiform, serrate, smooth; capsule smooth.

HAB. Fertile soils. N. Y. to Car. June, July. 2f.—Stem erect. Leaves scattered, obovate or wedge-shaped. Capsule smooth.

ORDER CVIII. URTICEÆ. Lind.

Flowers monoecious or dioecious, scattered or clustered. *Perianth* membranous, lobed, persistent. *Stamens* definite, distinct, inserted into the base of the calyx and opposite its lobes. *Ovary* superior, simple; *stigma* simple. *Fruit* a simple indehiscent nut, surrounded either by the membranous or fleshy perianth. *Seed* solitary, erect; *embryo* straight, curved or spiral; *radicle* superior.

Trees, shrubs or *herbs*, with alternate leaves, often covered with pungent hairs.

1. URTICA. Linn.

Monoecious, rarely dioecious. STERILE FL. *Perianth* single, of 4 leaves, containing the cup-shaped rudiment of a germ. *Stamens* 4. FERTILE FL. *Perianth* of 2 leaves. *Stigma* 1. *Nut* 1-seeded, shining. *Monoecia*. *Tetrandria*.

1. *U. pumila* Linn.: leaves opposite, ovate, acuminate, 3-nerved, serrate; lower petioles as long as the leaves; flowers monoecious, triandrous, in clustered corymbs, shorter than the petioles.

HAB. Wet grounds. Can. to Car. July. ☉.—Stem mostly erect, 6—12 inches high, succulent, almost transparent. *Leaves shining.* *Richweed.*

2. *U. urens* Linn.: leaves opposite, elliptic, somewhat 5-nerved, acutely serrate; spike glomerate, by pairs; flowers clustered.

HAB. Cultivated grounds. Can. to Geor. June, July. ☉.—Stem 12—20 inches high, hairy-hispid. Plant stinging. *Introduced.* *Stinging Nettle.*

3. *U. dioica* Linn.: leaves opposite, cordate, ovate-lanceolate, coarsely serrate; flowers dioecious; spike paniculate, clustered, by pairs, longer than the petiole.

HAB. Waste places. Can. to Car. June—Aug. 2f.—Stem 2—3 feet high, erect, branching. *Flowers* small, green, in axillary racemes which are in pairs. *Stinging.*

Large Stinging Nettle.

4. *U. procera* Muhl.: leaves opposite, ovate-lanceolate, serrate; petioles fringed; flowers dioecious; spikes branching, clustered, by pairs, longer than the petioles.

HAB. Low grounds. N. Y. S. to Car. July, Aug. 2f.—Stem 3—4 feet high, obtusely 4-angled. *Flowers* in compact approximate clusters.—According to Mr. Elliott, the leaves of this species are never cordate, and the spikes are uniformly longer than the petioles, in which points it differs from the *U. procera* of Pursh, which would seem to be a distinct species, probably the next.

5. *U. gracilis* Linn.: stem hispid; leaves opposite, ovate-lanceolate, serrate, cordate at base; flowers dioecious; peduncles hispid; clusters in pairs, somewhat branched, about as long as the petioles.—*U. procera* Pursh.?

HAB. Rocky places. Can. to Penn. Pursh. Muhl. N. to Arc. Amer. July, Aug. 2f.—Stem 2—3 feet high.

Slender Stalked Nettle.

6. *U. capitata* Linn.: leaves alternate, cordate-ovate, acuminate, serrate, 3-nerved, twice as long as the petiole; clusters spiked; spikes solitary, shorter than the leaves, leafy at the summit; stem naked.

HAB. Shady woods. Can. to Car. June, July. 2f.—Stem 4—5 feet high, scabrous, furrowed. *Leaves* scabrous, those on the stem generally opposite. *Clusters* lateral and axillary.—Resembles *U. dioica*.

7. *U. divaricata* Linn.: leaves alternate, ovate, acuminate, serrate, rather smooth; petioles long, ciliate; panicles axillary, solitary, divaricately branched, longer than the petiole; stem stinging.

HAB. Damp rocky grounds. Can. to Car. July, Aug. 2f.—Stem 2—3 feet high, branched.—Allied to the next species, but differs in the leaves being smooth and not cordate, the panicles solitary and mixed with fertile flowers.

8. *U. canadensis* Linn. : leaves alternate, cordate-ovate, acuminate, serrate, hispid on both sides ; panicles axillary, mostly in pairs, divaricately branched ; the lower ones sterile, and longer than the petiole ; the upper ones fertile, elongated ; stem very hispid, stinging.

HAB. Moist shaded grounds. Can. to Car. July, Aug. 24.—
Stem 5—6 feet high. Leaves ovate, large.—The fibres of this species are very tough and strong, and it was formerly proposed by Mr. Whitlow as a substitute for hemp. *Canadian Nettle.*

2. PARIETARIA. Linn.

Flowers polygamous, surrounded by a many-cleft involucre.
PERFECT FL. *Perianth* 4-cleft. *Stamens* 4 ; filaments at first incurved, then expanding with an elastic force. *Ovary* 1. *Style* 1. *Nut* 1, inclosed by the enlarged perianth.

Monoecia. Tetrandria.

P. pennsylvanica Muhl. : leaves oblong-lanceolate, veiny, with opaque dots ; involucre 3-leaved, longer than the flower.

HAB. Moist rocks. Penn. to Geor. June. ☉.—Stem 12—15 inches high, simple. *Flowers* in compact axillary clusters.

Pellitory.

3. CANNABIS. Linn.

Dioecious. STERILE FL. *Perianth* 5-parted. *Stamens* 5. FERTILE FL. *Perianth* oblong, opening at the side. *Styles* 2. *Nut* 2-valved, covered with the closed perianth.

Dioecia. Pentandria.

C. sativa Linn. : leaves petiolate, digitate ; leaflets 5—7, lanceolate, serrate.

HAB. In fields. June. ☉.—Apparently indigenous, but probably introduced. *Common Hemp. Neck Weed.*

4. HUMULUS. Linn.

Dioecious. STERILE FL. *Perianth* single, 5-parted. *Stamens* 5. *Anthers* with 2 pores at the extremity. FERTILE FL. *Scales* of the ament large, persistent, concave, entire, single flowered. *Perianth* none. *Styles* 2. *Seed* 1.

Dioecia. Pentandria.

H. lupulus Linn.

HAB. Hedges, &c. Aug. 24.—Stem twining, scabrous. Leaves opposite, 3—5-lobed, rough. *Flowers* greenish. Medicinal. *Big. Med. Bot.* iii. 163. *Common Hop.*

5. BOEHMERIA. Willd.

Monoecious. STERILE FL. *Perianth* 4-parted. *Sta-*

mens 4. FERTILE FL. *Perianth* none. *Style* 1. *Nut* compressed. *Monoecia. Tetrandria.*

1. *B. cylindrica* Willd. : leaves opposite, ovate-oblong, acuminate, toothed, smooth ; flowers dioecious ; sterile spikes clustered, interrupted ; fertile ones cylindrical ; stem herbaceous.

HAB. Wet ground. Can. to Flor. June—Aug. 2l.—*Stem* 2—3 feet high. *Leaves* petioled, 3-nerved. *Flowers* minute ; the fertile ones forming a compact cylindrical spike which is 1—2 inches long.

2. *B. lateriflora* Muhl. : leaves alternate, ovate-lanceolate, acuminate, serrate, scabrous ; flowers lateral, clustered ; stem herbaceous.

HAB. Shady woods. Penn. to Car. July. 2l.—*Stem* smooth. *Leaves* on long petioles, 3-nerved, scabrous on both sides. *Clusters* axillary and lateral, few-flowered.

ORDER CIX. ARTOCARPEÆ. R. Brown. Lind.

Flowers monoecious, in heads or aments. *Perianth* usually divided, sometimes tubular or entire. *Stamens* solitary or several, straight. *Ovary* 1- or 2-celled, superior, rarely inferior ; *ovule* suspended ; *style* single, filiform ; *stigma* bifid. *Fruit* usually a fleshy receptacle, covered by numerous nuts, rarely reduced to a single flower. *Seed* suspended, solitary ; *embryo* straight or curved ; *radicle* pointing to the hilum.

Trees, shrubs or *herbs*. *Leaves* alternate, toothed or lobed, or entire.

1. MORUS. Linn.

Monoecious. *Perianth* 4-parted, lobes concave. STERILE FL. *Stamens* 4. FERTILE FL. *Stigmas* 2. *Seeds* 1—2, covered by the fleshy perianth. *Monoecia. Tetrandria.*

1. *M. rubra* Linn. : dioecious ; leaves cordate, ovate, acuminate, often 3-lobed, equally serrate, scabrous, pubescent beneath ; fertile aments cylindrical ; fruit purple.

HAB. Woods. N. S. to Car. May. 5.—A large tree with long virgate branches. *Leaves* often divided. *Flowers*, according to Mr. Elliott, always dioecious.—The fruit is esteemed by some, and the wood is remarkably durable. *Red Mulberry.*

2. *M. alba* Linn. : monoecious ; leaves deeply cordate, unequal at base, ovate and lobed, unequally serrate, nearly smooth ; fruit white.

HAB. Naturalized in various parts of the U. S. May. 5.—A tree from 20 to 30 feet high.—Employed chiefly in raising the silk worm. *White Mulberry.*

ORDER CX. SAURURÆ. *Rich. Lind.*

Flowers naked, seated upon a scale, monoclinal. *Stamens* 6, clavate, hypogynous, persistent; *filaments* slender; *anthers* continuous with the filament, cuneate, with a thick connecticum and 2 lateral lobes bursting longitudinally. *Ovaries* 4, each distinct, with 1 ascending *ovule* and a sessile recurved *stigma*, or connate into a 3 or 4-celled pistil, with a few ovules ascending from the edge of the projecting semi-dissepiments. *Fruit* consisting of 4 fleshy indehiscent nuts or 3- or 4-celled capsule, opening at the apex and containing a few ascending seeds. *Seeds* with a membranous integument; *embryo* minute, lying in a fleshy lenticular sac, which is seated on the outside of mealy *albumen* at the end most remote from the hilum.

Herbs growing in marshy places, or floating in water. *Leaves* alternate, with stipules.

1. SAURURUS. *Linn.*

Flowers in an ament, or crowded spike. *Scales* 1-flowered. *Stamens* 6. *Anthers* adnate with the filaments. *Capsule* 4, each 1- or rarely 2-seeded, not opening.

Hexandria. Tetragynia.

S. cernuus Linn.—*Anonymos aquatica* Walt.

HAB. Swamps. Can. to Car. Aug. 24.—*Stem* 1—2 feet high, leafy, forked above. *Leaves* sagittate-cordate, acuminate, nerved beneath. *Flowers* very small, greenish-white, in spikes opposite the leaves, cernuous.

Lizard's-tail. Swamp Lily.

ORDER CXI. AMENTACEÆ. *Juss.*

Flowers monoecious or dioecious. STERILE FL. in aments, with scales, or a scaly perianth. *Stamens* inserted into the scales, definite or indefinite, rarely monadelphous; *anthers* 2-celled. FERTILE FL. in aments, solitary or fasciculated, with scales or perianths. *Ovary* free, simple, rarely several; *stigmas* many. *Fruit* a drupe, or a bony or membranaceous capsule, mostly 1-celled. *Seeds* 1 or many; *albumen* none; *radicle* straight.

Trees or *shrubs*. *Leaves* alternate.

SUBORDER I. SALICINÆ.

1. SALIX. Linn.

Dioecious. STERILE FL. Ament cylindrical. Scales 1-flowered, imbricated, with a nectariferous gland at the base. Perianth none. Stamens 1—5. FERTILE FL. Scales of the ament 1-flowered. Perianth none. Stigmas 2, often cleft. Capsule 1-celled, 2-valved, many-seeded. Seeds comose. Dioecia. Diandria.

* Leaves entire or obscurely serrate.

1. *S. viminalis* Linn.: leaves linear-lanceolate, very long, acuminate, nearly entire, somewhat undulate, white silky beneath; stipules very small, sublanceolate; branches virgate; aments appearing before the leaves; scales roundish, very hairy; germs sessile, ovate; style filiform; stigmas acute, undivided.

HAB. Banks of streams. N. S. April, May. ♀.—A middle sized tree. Branches slender and flexile. Filaments yellow. Anthers orange. Introduced. Osier. Basket Willow.

2. *S. candida* Willd.: leaves linear-lanceolate, very long, obscurely toothed at the point, pubescent above, white-tomentose beneath, with the margin revolute; stipules lanceolate, as long as the petioles; aments appearing before the leaves, cylindric; scales obovate-lanceolate, very long, villous.

HAB. Shady woods. N. Y. and Penn. N. to Arc. Amer. April, May. ♀.

3. *S. muhlenbergiana* Willd.: leaves lanceolate, nearly acute, entire, pubescent-hoary, rugosely-veined beneath, with the margin revolute; stipules deciduous, lanceolate; aments appearing before the leaves, diandrous; scales oblong, the margins villous; germs ovate-lanceolate, clothed with silken hairs, on long pedicels; style short; stigmas bifid.—*S. alpina* Walt.

HAB. Dry woods. N. Y. to Car. April. ♀.—A shrub 2—5 feet high, often decumbent; branches pubescent, greenish-yellow, with black dots. Scales white, with a red tip. Anthers purple and yellow. Dwarf or Speckled Willow.

4. *S. tristis* Muhl.: leaves linear-lanceolate, acute at each end, entire, with the margins revolute, smoothish above, rugosely veined and tomentose beneath; stipules none; aments appearing before the leaves.

HAB. Sandy woods. N. J. to Car. March, April. ♀.—A shrub resembling the preceding, but differing in the form of the leaves and in the absence of stipules.

5. *S. recurvata* Pursh: leaves obovate-lanceolate, acute, very entire, with the margin glandular, smooth, glaucous beneath, silky when young; stipules none; aments appearing before the leaves, recurved; scales black at the point, with long hairs; germs ovate, on short pedicels, silky; style very short; stigmas bifid.

HAB. Shady woods. N. J. and Penn. April. ♀.—A low shrub, with brown smooth branches and yellow buds.

6. *S. pedicillaris* Pursh: branches smooth; leaves obovate-lanceolate, acute, very entire, smooth and of the same colour on both sides; stipules none; aments pedunculate, very smooth; scales oblong, half the length of the pedicel, scarcely hairy; germs ovate-oblong, on a very long pedicel; stigmas sessile, bifid.

HAB. Catskill mountains, N. Y. April. ♀. Pursh.

7. *S. rosmarinifolia* Linn.: leaves straight, linear-lanceolate, acute at each end, very entire, pubescent above, silky beneath; stipules lanceolate, erect; aments appearing before the leaves; scales oblong, obtuse, ciliate; germs pedicellate, lanceolate, villous; stigmas subsessile, bifid.

HAB. Wet meadows and mountain swamps. Penn. to Car. March. ♀.—A shrub 1—3 feet high; the branches silky pubescent. Leaves 1 1-2 inches long, becoming smooth when old.—According to Sprengel, the Linnæan *S. rosmarinifolia* is identical with *S. depressa* of Hoffmann.

8. *S. repens* Linn.: creeping; leaves elliptic-lanceolate, very entire, acute, smooth, somewhat silky beneath; stipules none; aments appearing before the leaves, ovate, diandrous; scales obovate, obtuse, hairy, fuscous at the point; germs ovate-oblong, on pedicels, pubescent; style very short; sigmas 2-lobed; capsule smooth.—*S. depressa* Hoff.

HAB. Can. and N. Y. ? May. ♀.—A very small creeping species.

** *Leaves remotely and obtusely serrate.*

9. *S. conifera* Wagh.: leaves oblong-lanceolate, flat, remotely serrate, acute, smooth above, tomentose beneath; stipules lunate, subdentate; aments appearing before the leaves, diandrous; scales lanceolate, obtuse, villous; germs on pedicels, lanceolate, silky; style bifid; stigmas 2-lobed.—*S. longirostris* Mich.

HAB. Shady woods. N. Y. to Car. April. ♀.—Shrub 4—8 feet high, with cone-like excrescences at the end of the branches. Style long.

10. *S. myricoides* Muhl.: leaves oblong-lanceolate, acute, biglandular at base, obtusely serrate, smooth, glaucous beneath; stipules ovate, acute, glandular-serrate; aments villous, leafy at the base; scales lanceolate, obtuse, villous, black; germs on long pedicels, lanceolate, glabrous; style bifid; stigmas bifid.

HAB. Woods and meadows. N. Eng. to Vir. April. ♀.—A small shrub. Branches green; younger ones purple, smooth.

11. *S. prinoides* Pursh: leaves oval-oblong, acute, remotely undulate-serrate, glabrous, glaucous beneath; stipules semicordate, irregularly toothed; aments appearing before the leaves, villous; germs pedicellate, ovate, acuminate, silky; style long; stigmas bifid.

HAB. On the banks of rivers. Penn. to Vir. March, April. ♀.
—A shrub 6–8 feet high,

12. *S. discolor* Willd. : leaves oblong, somewhat obtuse, smooth, remotely serrate, very entire at the point, glaucous beneath; stipules deciduous, lanceolate, serrate; aments appearing with the leaves, diandrous, oblong, tomentose; scales oblong, acute, hairy, black; germs subsessile, lanceolate, tomentose; style of middling length; stigmas 2-parted.

HAB. Low grounds. N. Eng. to Car. April. ♀.—A shrub or small tree, dark brown. Filaments white; anthers red, yellow when burst.—Perhaps identical with the preceding.

Bog Willow.

13. *S. angustata* Pursh : leaves lanceolate, acute, very long, gradually attenuated at the base, serrulate, very smooth, nearly of the same colour; stipules semicordate; aments appearing before the leaves, erect, somewhat glabrous; germs pedicellate, ovate, smooth; style bifid; stigmas 2-lobed.

HAB. Banks of streams. N. Y. and Penn. W. to Miss. March, April. ♀.—A shrub with very long leaves.—Resembles *S. prioides*. According to Mr. Nuttall it is identical with the next.

14. *S. longifolia* Muhl. : leaves linear, acuminate at each end, elongated, remotely toothed, smooth, nearly of the same colour on both sides; stipules lanceolate, toothed; aments peduncled, tomentose, diandrous; scales flat, retuse; filaments bearded at base, twice the length of the scales.

HAB. On the banks of the Susquehannah. Penn. W. to Miss. Muhl. July. ♀.—A shrub about 2 feet high, with brown branches and white branchlets.

*** Leaves closely and acutely serrate.

15. *S. babylonica* Linn. : branches pendulous; leaves lanceolate, acuminate, serrate, smooth, somewhat glaucous beneath; stipules roundish-acuminate, serrate; aments appearing with the leaves; germs sessile, ovate, smooth.

HAB. Road sides, near cultivated ground. May. ♀.—A tree which is introduced from Europe, but has been so much planted for ornament as to have become almost naturalized.

Weeping Willow.

16. *S. purshiana* Spreng. : leaves very long, linear-lanceolate, gradually attenuate above; subfalcate at base, acute, approximate-serrate, smooth on both sides, silky when young; stipules lunate, toothed, reflexed.—*S. falcata* Pursh.—*S. cordata* var. *falcata* Torr. ?

HAB. Banks of streams. Penn. to Vir. Pursh. Penn. Darlington. ♀.—A small tree, 8–15 feet high, with smooth and slender branches.—Humboldt having given the name of *falcata* to a South American species of *Salix*, Sprengel proposes to change the name of Pursh's plant. Spreng. Syst. v. 608.

17. *S. nigra* Marsh. : leaves lanceolate, acute at each end, serrulate,

smooth on both sides; petiole and midrib tomentose above; stipules toothed; aments appearing with the leaves, erect, cylindric, villous; scales oblong, very villous; filaments 3—6, bearded at base; germs pedicelled, ovate, smooth; style very short; stigmas bifid.—*S. caroliniana* Mich.—*S. pentandra* Walt.

HAB. Banks of streams. Penn. to Car. April, May. ♀.—A tree from 15—20 feet high, generally branching from the base; branches very brittle at base. Sterile aments 3 inches long. Filaments generally 5.

18. *S. lucida* Muhl.: leaves ovate-oblong, cuspidate-acuminate, rounded at base, serrate, smooth and shining on both sides; stipules oblong, serrate; aments appearing with the leaves, triandrous; scales lanceolate, obtuse at base, pilose, serrate at the point, smooth; germs lanceolate-subulate, smooth; style bifid; stigmas obtuse.

HAB. Low grounds. N. Y. to Vir. May. ♀.—A shrub or small tree with yellowish-brown branches. Leaves thick.

19. *S. rigida* Muhl.: leaves oblong-lanceolate, acuminate, subcordate at base, rigid, smooth, coarsely serrate, the lowest serratures elongated; petioles villous; stipules large, cordate, obtuse, serrate; aments appearing with the leaves, triandrous; scales lanceolate, woolly, black; germs on long pedicels, lanceolate, smooth; style very short; stigmas 2-parted.—*S. cordata* Mich.

HAB. Swamps. N. Eng. to Vir. April, May. ♀.—A small tree; branches green, red towards the end, the younger ones pubescent.—It is tough and much used by basket makers.

20. *S. cordata* Muhl.: leaves oblong-lanceolate, acuminate, cordate at base, acutely serrate, smooth, paler beneath; stipules large, ovate-roundish, serrate; aments appearing with the leaves, triandrous; scales lanceolate woolly, black; germs on pedicels, lanceolate, smooth; style very short; stigmas bifid.

HAB. Low swampy ground. N. Y. to Vir. N. to Arc. Amer. April, May. ♀.—A shrub 6—8 feet high, with large and broad leaves.

21. *S. grisea* Willd.: leaves lanceolate, acuminate, serrulate, smooth above, silky or naked beneath; stipules linear, deflexed, deciduous; aments appearing before the leaves; scales oblong, hairy, black at the point; germs oblong, pedicelled, silky; stigmas sessile, obtuse.—*S. sericea* Muhl.

HAB. Low grounds. Penn. to Vir. April. ♀.—A shrub 3—8 feet high; branches greenish-purple, very brittle at the base.

22. *S. petiolaris* Smith: leaves lanceolate, serrate, smooth, glaucous beneath, silky at base, mostly unequal; stipules lunate, toothed; aments appearing before the leaves, loose; scales obovate, obtuse, hairy, black; germs on long pedicels, ovate, silky, stigmas sessile, 2-lobed.

HAB. Swamps and banks of streams; common. Pursh. April. ♀.—A small tree with slender smooth dark brown branches.

23. *S. alba* Linn. : leaves lanceolate, acuminate, serrate, silky on both sides ; lower serratures glandular ; stipules obsolete ; aments appearing with the leaves, elongated ; scales elliptic-lanceolate, of the same colour, pubescent ; germs subsessile, ovate-oblong ; style short ; stigmas 2-parted, thick.

HAB. Road sides and river banks. April, May. ♀.—A tall tree, introduced from Europe. *Pursh.*

24. *S. vitellina* Linn. : leaves lanceolate, acuminate, with thickened serratures, smooth above, paler and somewhat silky beneath ; stipules none ; aments appearing with the leaves, cylindric ; scales ovate-lanceolate, externally pubescent ; germs sessile, ovate lanceolate, smooth ; stigmas subsessile, 2-lobed.

HAB. Road sides and about farms. May. ♀.—A middle-sized tree, introduced from Europe.

25. *S. decipiens* Hoff. : leaves lanceolate, acuminate, serrate, very smooth, same colour on both sides ; petioles glandular toothed ; stipules roundish ; aments appearing with the leaves ; scales obovate, villous ; germs subsessile, lanceolate, smooth ; stigmas sessile, 2-parted.—*S. fragilis* Linn.—*S. russeliana* Smith.

HAB. Road sides, &c. Introduced into the N. S. ? Native in Arc. Amer. *Richardson.* April, May. ♀.—A small tree with very brittle branches.

26. *S. ambigua* Pursh : leaves lanceolate, acuminate, same colour on both sides, smooth, glandular, serrate ; aments appearing with the leaves ; nectary large ; its lobes lanceolate, smooth, toothed at the summit ; terminal flowers triandrous.

HAB. Low grounds. N. Y. and N. J. April. ♀.—The only authority for this as an American species, I believe, is Pursh, who says it resembles in leaves and habit *S. vitellina*, and in fructification *S. decipiens*. Sprengel considers it a variety of *S. triandra* of Linnæus.

2. POPULUS. Linn.

Dioecious. *Ament* cylindrical ; scales lacerated. **STERILE FL.** *Anthers* 8—30, arising from a turbinate, oblique, entire, single perianth. **FERTILE FL.** *Perianth* turbinate, entire. *Stigmas* 4. *Capsule* superior, 2-celled, 2-valved, many-seeded. *Seeds* comose. *Dioecia. Octandria.*

1. *P. balsamifera* Linn. : leaves ovate, acuminate, appressed-serrate, white and reticular-veined beneath ; buds resinous.

HAB. Can. and N. to the Arctic Sea ; abundant. Introduced into N. Y. March. ♀.—A tree from 70—80 feet high, the young buds of which are covered with an odoriferous balsam.

Balsam Poplar. Tucamahac.

2. *P. candicans* Ait. : leaves cordate, ovate, acuminate, obtusely and unequally serrate, white beneath, somewhat 3-nerved, reticular-vein-

ed ; petioles hairy ; buds resinous ; branches terete.—*P. canadensis* and *latifolia* Moench.

HAB. Woods. N. Eng. *Pursh.* March. ♀.—A tree from 40—50 feet high ; leaves large ; buds covered with balsam.

Balm of Gilead.

3. *P. tremuloides* Mich. : leaves roundish, abruptly acuminate, dentate-serrate, pubescent on the margin.—*P. trepida* Willd. ?

HAB. Woods. N. S. N. to Subarc. Amer. April. ♀.—A tree from 20—30 feet high, with smooth bark. *Leaves* small, light, roundish. *Flowers* in pendulous silken aments.

4. *P. monilifera* Ait. : leaves subcordate-deltoid, smooth, glandular at base, serrate ; serratures cartilaginous, hamate, somewhat hairy ; nerves spreading ; petioles compressed above ; older branches terete.—*P. glandulosa* and *P. caroliniensis* Moench.

HAB. Banks of the Hudson, near Troy, N. Y. ; apparently native. April. ♀.—A tree 70—80 feet high. Fertile aments very long. —Michaux remarks that this tree has not been met with in N. America growing wild, but it has been generally considered a native of this country. *Virginian Poplar.*

5. *P. hudsonica* Mich. : leaves rhomboid, with a very long acumination, dentate-serrate, smooth ; young branches hairy.—*P. betulifolia* *Pursh.*

HAB. Banks of streams. N. S. March. ♀.—A tree 30—40 feet high, with spreading branches, which are covered with a grayish-white bark when young. *American Black Poplar.*

6. *P. grandidentata* Mich. : leaves ovate, nearly round, acute, unequally and sinuately toothed, smooth, the younger ones villous ; petioles compressed near the summit.

b. pendula Nutt. : branches pendulous.

HAB. Can. and N. S. April. ♀.—A tree from 40 to 50 feet high, covered with a smooth greenish bark. Young leaves covered with a thick down, which disappears as they become older. The large and unequal indentations on the margins of the leaves sufficiently characterises this species.—Var *b.* is found on the Alleghany mountains, Penn. *American Large Aspen.*

7. *P. lavigata* Ait. : leaves roundish-ovate, deltoid, acuminate, subcordate, unequally serrate, smooth, glandular at base ; petioles compressed ; younger branches angled.—*P. canadensis* Mich.

HAB. Rocky grounds. Can. to Vir. W. to the Rocky Mountains. March. ♀.—A tree from 70 to 80 feet high ; branches angular, the angles forming whitish lines. *Leaves* large, deltoid, somewhat cordate ; *petioles* with two glands at the base.—This species has been confounded with *P. angulata*, but according to the younger Michaux it is distinct. *Cotton Wood.*

8. *P. heterophylla* Linn. : leaves roundish-ovate, obtuse, uncinately toothed ; the sinus small, cordate and somewhat auricled ; when young tomentose.

HAB. Swamps. N. Y. to Car. and W. to Miss. May. ♀.

—A tree 60—80 feet high, with the branches not angled. *Leaves* with lobes or auricles that often conceal the insertion of the petiole.

SUBORDER II. MYRICEÆ.

3. MYRICA. Linn.

Dioecious. *Ament* ovate-oblong; scales lunulate. **STERILE FL.** *Stamens* 4—6. *Anthers* 4-valved. **FERTILE FL.** *Ovary* 1. *Stigmas* 2. *Drupe* 1-celled, 1-seeded.

Dioecia. Tetrandria.

1. *M. gale* Linn.: leaves cuneate-lanceolate, serrate at the apex, obtuse; sterile aments imbricated; scales acuminate, ciliate; fruit in scaly heads.

HAB. Bogs and mountain lakes. Can. and N. S. May. γ .—
A branching shrub 4—5 feet high. *Leaves* alternate. *Fruit* with a strong penetrating spicy scent.

Sweet Gale. Dutch Myrtle.

2. *M. cerifera* Linn.: leaves cuneate-lanceolate, with a few serratures near the summit, acute; sterile aments loose; scales acute; fruit globular, naked.—*M. caroliniensis* and *pennsylvanica* Pursh.?

HAB. Shady woods. N. Eng. to Flor. May, June. γ .—A shrub 2—8 feet high, but sometimes (especially at the South,) 10—18 feet, diffusely spreading. *Leaves* varying in width, sometimes entire, somewhat pubescent. *Fruit* small, dry and juiceless, but by boiling, a wax of very pleasant flavour is extracted from it, which is used for making candles, &c. *Big. Med. Bot.* iii.

Bayberry. Wax Myrtle.

4. COMPTONIA. Gaert.

Monoecious. **STERILE FL.** *Ament* cylindrical; scales 1-flowered. *Perianth* 2-parted. *Stamens* 3, forked; *anthers* 6. **FERTILE FL.** *Ament* globose; scales 1-flowered. *Styles* 2. *Nut* ovate. *Monoecia. Triandria.*

C. asplenifolia Ait.—*Liquidambar asplenifolium* Linn.

HAB. Woods. Can. to Geor. April, May. γ .—A shrub 2—4 feet high. *Leaves* long, linear, cut almost to the midrib into numerous roundish lobes. *Flowers* in oval sessile aments—The whole plant when rubbed, has a strong and somewhat fragrant scent. *Nuts* forming a round burr. *Sweet Fern.*

SUBORDER III. BETULINEÆ.

5. BETULA. Linn.

Monoecious. *Ament* cylindrical. **STERILE FL.** *Perianth* none. *Stamens* 10—12. **FERTILE FL.** *Scales* imperfectly

3-lobed, 3-flowered. *Perianth* none. *Styles* 2. *Nuts* compressed, with a membranaceous margin, 1-seeded.

Monoecia. Polyandria.

1. *B. populifolia* Ait. : leaves deltoid, long-acuminate, unequally serrate, very smooth ; petioles smooth ; scales of the strobile with roundish lateral lobes.

HAB. Rocky woods. Can. and N. S. May. ♀.—A tree from 30—40 feet high, with white bark which is easily separable into thin layers. *Leaves* tapering to a long point. *Flowers* in long pendulous aments. *White Birch.*

2. *B. excelsa* Ait. : leaves ovate, acute, serrate ; petioles pubescent, shorter than the peduncles ; scales of the strobile with rounded lateral lobes.—*B. lutea* Mich. f.

HAB. Low grounds. N. Eng. and N. Y. May, June. ♀.—A tree from 70—80 feet high, with a yellowish bark, which is slightly fragrant. Fertile *aments* ovate, erect.—Used for fuel. *Yellow Birch.*

3. *B. nigra* Linn. : leaves rhombic-ovate, doubly serrate, acute, pubescent beneath, entire at base ; fertile ament ovate ; scales villous, with the segments linear and equal.—*B. rubra* Mich. f.

HAB. Banks of streams. N. J. to Car. May. ♀.—A middle-sized tree, though sometimes quite large. *Leaves* on short petioles and acutely serrate.—The wood is of little consequence. *Red Birch.*

4. *B. papyracea* Ait. : leaves ovate, acuminate, doubly serrate ; veins beneath hirsute ; petioles smooth ; fertile aments pedunculate, nodding ; scales with short suborbicular lateral lobes.—*B. papyrifera* Mich.

HAB. Can. and N. Y. N. to Hudson's Bay. May, June. ♀.—A large tree, the bark of which is used by the Indians for constructing their canoes. *Canoe Birch.*

5. *B. lenta* Linn. : leaves cordate-ovate, sharply serrate, acuminate ; nerves beneath and petioles hairy ; scales of the ament smooth ; lobes obtuse, equal, with elevated veins.—*B. carpinifolia* Mich.

HAB. Woods. Can. to Geor. May, June. ♀.—A large tree, with the branches spotted with white when young. Its bark is fragrant and aromatic. *Leaves* cordate at base and terminating in a long point.—The wood of this species has a fine grain, and is susceptible of polish. *Black Birch. Mahogany Birch.*

6. *B. pumila* Linn. : young branches pubescent, without dots ; leaves orbicular-obovate ; petioles densely pubescent beneath ; fertile ament cylindrical.

HAB. Mountain bogs. Can., N. Y. and Penn. May, June. ♀.—A shrub 2—3 feet high, with the leaves on short petioles.

7. *B. glandulosa* Mich. : branches glandular, punctate, smooth ; leaves obovate, serrate, very entire at base, smooth, subsessile ; fertile ament oblong ; scales half 3-cleft ; seeds orbicular, with a narrow margin.

HAB. Mountains. Can. and N. S. W. to N. W. Terr. May.
 ♀.—A shrub about 2 feet high.

8. *B. nana* Linn. : very smooth; leaves orbicular, crenate, reticular-veined beneath; scales of the ament deeply 3-parted; segments oblong; seeds orbicular, nearly-wingless.

HAB. White Mountains, N. H. N. to Hudson's Bay. April,
 May. ♀.—A shrub 1 or 2 feet high, with small leaves.

6. ALNUS. Willd.

Monoecious. STERILE FL. Ament long, cylindrical; scales 3-lobed, 3-flowered. Perianth 4-parted. Stamens 4. FERTILE FL. Ament ovate; scales subtrifid, 2-flowered. Perianth none. Styles 2. Nut compressed.

Monoecia. Tetrandria.

1. *A. serrulata* Willd. : leaves obovate, acuminate, veins and axils of the veins hairy beneath; stipules elliptic, obtuse.

HAB. Swamps and banks of rivers. Can. to Car. March. ♀.
 —A shrub 6—10 feet high, with alternate leaves. Sterile flowers in a long pendulous ament; fertile ones short and rigid, forming a persistent cone. Alder.

2. *A. undulata* Willd. : leaves ovate-oblong, acute, unequally serrate, undulate; petioles and veins beneath hairy; stipules ovate-oblong.—*A. crispa* Pursh.—*Behela crispa* Mich.

HAB. Can. and mountains in N. S. April. ♀.—A shrub 3—4 feet high.

7. CARPINUS. Linn.

Monoecious. STERILE FL. Ament long-cylindric; scales ciliate at base. Stamens 8—14, somewhat bearded at the top. FERTILE FL. Strobile lax; scales leafy, 2-flowered. Stigmas 2. Nut bony, ovate, sulcate, 1-seeded.

Monoecia. Polyandria.

C. americana Willd. : leaves oblong-ovate, acuminate, unequally serrate; scales of the strobile 3-parted, the middle segment oblique, ovate-lanceolate, toothed on one side.—*C. virginiana* Mich.f.

HAB. Woods. Can. to Flor. May. ♀.—A small tree, with the leaves alternate on short petioles and sharply serrate. Fertile aments loose, with large foliaceous scales. Hornbeam.

8. OSTRYA. Mich.

Monoecious. STERILE FL. Ament cylindrical; scales 1-flowered. Perianth none. Filaments branched. FERTILE FL. Ament naked. Capsule inflated, imbricate, 1-seeded at base.

Monoecia. Polyandria.

O. virginica Willd. : leaves ovate-oblong, cordate at the base, acuminate, unequally serrate ; strobile oblong-ovate, erect ; buds acute.
—*Carpinus Ostrya* Mich. ?

HAB. Woods. Can. to Car. May. ♀.—A small tree with exceedingly hard and heavy wood. *Leaves* alternate, ovate. Fertile *flowers* enlarged into a sort of oblong cone resembling the common hop. *Iron Wood. Hop Hornbeam.*

SUBORDER. IV. PLATANÆ.

9. PLATANUS. Linn.

Monoecious. *Ament* globose. STERILE FL. *Stamens* numerous, intermixed with linear scales. FERTILE FL. *Scales* spatulate. *Styles* with a recurved stigma. *Seeds* roundish, clavate, pappose at base. *Monoecia. Polyandria.*

P. occidentalis Linn. : leaves 5-angled, obscurely lobed, toothed, pubescent beneath ; branches nearly white.

HAB. Banks of streams. Can. to Flor. and W. to Miss. May. ♀.—One of the largest trees in North America, attaining in favorable situations an enormous size. *Leaves* alternate, on long petioles. *Aments* axillary, on long peduncles, globular. *Button Wood. Sycamore.*

10. LIQUIDAMBAR. Linn.

Monoecious. STERILE FL. *Ament* conical, surrounded by a 4-leaved involucre. *Perianth* none. *Stamens* numerous. FERTILE FL. *Ament* globose, *Perianth* 1-leaved, urceolate, 2-flowered. *Styles* 2. *Capsules* 2, surrounded at base by the perianth, 1-celled, many-seeded.

Monoecia. Polyandria.

L. styraciflua Linn. : leaves palmately lobed ; lobes acuminate, serrate, with the sinuses at the base of veins villous.

HAB. Low woods. N. Y. to Flor. and W. to Miss. May. ♀.—A tree sometimes attaining very large dimensions. *Leaves* when bruised, fragrant, and exuding a gum which is pleasant and slightly aromatic. *Sweet Gum Tree.*

SUBORDER V. CUPULIFERÆ.

11. QUERCUS. Linn.

Monoecious. STERILE FL. *Ament* loose. *Perianth* single, mostly 5-cleft. *Stamens* 5—10. FERTILE FL. *Cupule* cup-shaped, scaly. *Perianth* 6-lobed. *Ovary* 3-celled, 2 of them abortive. *Style* 1. *Stigmas* 3. *Acorn* 1-celled, 1-seeded, surrounded at base by the enlarged scaly cupule.

Monoecia. Polyandria.

* *Fructification biennial. Leaves setaceous mucronate.*

† *Leaves entire.*

1. *Q. phellos* Linn. : leaves deciduous, linear-lanceolate, tapering at each end, very entire, smooth, mucronate ; acorn nearly round.

HAB. Low swampy forests. N. J. to Flor. May. ♀.—A tree from 30 to 60 feet high, generally straight and slender. *Leaves* when young of a light green colour and dentate. *Acorn* small, nearly round.—The timber is of little use. *Willow Oak.*

2. *Q. imbricaria* Mich. : leaves deciduous, oblong, acute at each end, mucronate, very entire, shining, pubescent beneath ; cup shallow ; scales broad ovate ; acorn subglobose.

HAB. Banks of rivers in mountainous regions. Penn. to Car. W. to Miss. June. ♀.—A tree 40–50 feet high, with numerous irregular branches. *Acorn* small, nearly spherical, in a flat nearly sessile cup.—The wood splits easily and is used in the Western States for shingles. *Shingle Oak.*

†† *Leaves dentate or with short lobes.*

3. *Q. heterophylla* Mich. : leaves on long petioles, ovate-lanceolate or oblong, entire or coarsely toothed ; cup hemispherical ; acorn subglobose.

HAB. Banks of the Delaware. Penn. May. ♀.—According to Pursh, there is only one individual of this species known, which grows near Philadelphia. He suggests that it may be a hybrid. It is figured and described by Michaux in his *Sylva Americana*.

4. *Q. aquatica* Walt. : leaves obovate-wedge-form, smooth, very entire, obscurely 3-lobed at the end, with the middle lobe largest ; cup hemispherical ; acorn subglobose.—*Q. nigra* Linn.

HAB. Swamps. Md. to Flor. May. ♀.—A tree 30–40 feet high. *Leaves* very variable. *Cup* shallow. *Acorn* rather small, roundish. Resembles *Q. laurifolia*.—Its timber is of no value.

Water Oak.

5. *Q. triloba* Linn. : leaves oblong-wedge-form, acute at the base, somewhat 3-lobed at the end ; lobes equal, mucronate, tomentose beneath, middle one longer ; cup flat ; acorn depressed-globose.

HAB. Pine barrens. N. J. to Geor. May. ♀.—A tree 20–40 feet high, of rapid growth. *Downy Black Oak.*

6. *Q. nigra* Willd. : leaves coriaceous, wedgeform, subcordate at base, dilated and retusely 3-lobed at the summit ; when young mucronate, smooth above, rusty and pulverulent beneath ; cup turbinate, with scales obtuse and scarious ; acorn short, ovate.—*Q. ferruginea* Mich. f.

HAB. Sandy woods. N. J. to Flor. May. ♀.—A tree 20–30 feet high, irregular in its growth, and covered with a thick rough black bark.—The wood is much esteemed for fuel.

Barren Oak. Black Jack.

7. *Q. tinctoria* Bartram : leaves obovate-oblong, slightly sinuate, pubescent beneath ; lobes oblong, obtuse, obscurely toothed, mucronate ; cup flat ; acorn depressed-globose.

HAB. Woods. Can. to Geor. W. to Miss. May. ♀.—One of the largest species of oak, sometimes attaining the height of 70 or 80 feet, covered with a dark coloured bark, from whence it has derived its common name. It is highly valued on account of its timber, as well as its bark. *Black Oak. Quercitron.*

8. *Q. discolor* Ait. : leaves oblong, pinnatifid-sinuate, pubescent beneath ; lobes oblong, toothed, setaceous mucronate ; cup turbinate ; acorn ovate.—*Q. tinctoria sinuosa* Mich. f.

HAB. Forests. Penn. to Car. May. ♀.—A large tree, resembling the preceding, and also *Q. coccinea*, but differs in having the young leaves covered with down.—It is still, however, doubtful whether it is really distinct.

††† *Leaves deeply sinuate and lobed.*

9. *Q. coccinea* Wagh. : leaves on long petioles, oblong, deeply sinuate, smooth ; lobes divaricate, dentate, acute, setaceous mucronate ; cup turbinate, scaly ; acorn short, ovate.

HAB. Fertile woods. N. Eng. to Geor. May. ♀.—A tree 70—80 feet high. Distinguished by the brilliant red colour of its leaves towards the close of autumn.—Its wood is used for staves and fuel. *Scarlet Oak.*

10. *Q. rubra* Linn. : leaves on long petioles, oblong, smooth, obtusely sinuate ; lobes rather acute, toothed, setaceous mucronate ; cup flat, nearly smooth ; acorn subovate.

HAB. Forests. Can. to Geor. May. ♀.—A tree from 70—80 feet high. *Leaves* bright green ; sinuses large, rounded.—Resembles the former, but its leaves are large, and in autumn they change to a dull red and finally become yellow. The acorn also is larger, has a flat base and shallow cup.—It is valuable both for its wood and bark. *Red Oak.*

11. *Q. catesbeii* Mich. : leaves on short petioles, wedgeform at base, oblong, deeply sinuate, smooth ; lobes 3—5, divaricate, dentate, acute, setaceous mucronate ; cup turbinate, broad ; scales obtuse, those of the margin bent inwards ; acorn subglobose.

HAB. Pine barrens. Md. to Flor. May. ♀.—A shrub or small tree, from 10—20 feet high, with an irregular stem and branches. *Leaves* coriaceous and glossy. *Cup* large and remarkable for its obtuse scales.—The wood makes excellent fuel, and its bark is used by the tanner. *Barren Scrub Oak.*

12. *Q. falcata* Mich. : leaves on long petioles, obtuse at base, tomentose beneath, 3-lobed or sinuate ; lobes somewhat falcate, setaceous mucronate, the terminal one long ; cup shallow, somewhat turbinate ; acorn globose.—*Q. elongata* Linn.—*Q. rubra* Walt.

HAB. Sandy soil. N. J. to Geor. May. ♀.—A tree 70—80 feet high. *Leaves* with 3—5 lobes, glossy on the upper surface.—The wood is used for staves, fencing and fuel. The bark is highly esteemed by tanners. *Spanish Oak. Red Oak.*

13. *Q. palustris* Mich. : leaves on long petioles, oblong, deeply sinuate, smooth ; axils of the veins villous beneath ; lobes divaricate, den-

tate, acute, setaceous mucronate; cup flat, smooth; acorn subglobose.

HAB. Swampy woods. N. Y. N. Eng. and Penn. W. to Ill. May. ♀.—A tree 40–60 feet high, with small handsomely divided leaves. Acorns small, abundant.—The wood is firm and much used by mechanics. *Water Oak. Pin Oak.*

14. *Q. bannisteri Mich.*: leaves on long petioles, obovate-wedgeform, 3–5-lobed, entire on the margin, grayish tomentose beneath; lobes setaceous mucronate; cup subturbinate; acorn subglobose.—*Q. illinoensis Willd.*

HAB. Dry hills and barrens. Can. to Geor. May. ♀.—A shrub 4–6 feet high. Fruit abundant.—Covers large tracts called oak barrens, in various parts of New-York and other states. *Shrub or Scrub Oak.*

** *Fructification annual. Fruit pedunculate. Leaves aculeless.*

† *Leaves lobed.*

15. *Q. obtusiloba Mich.*: leaves oblong, sinuate, wedgeform at base, pubescent beneath; lobes obtuse, the upper one dilated and 2-lobed; cup hemispherical; acorn oval.—*Q. stellata Linn.*

HAB. Sterile grounds. Can. to Flor. May. ♀.—A tree 30–50 feet high, with straggling irregular branches. Leaves mostly 5-lobed. Cup hemispherical, enclosing nearly half of the acorn.—The timber is much esteemed in ship building, and is supposed in durability and strength to surpass that of any other species of oak except the live oak.

16. *Q. macrocarpa Linn.*: leaves tomentose beneath, deeply and lyrate sinuate-lobed; lobes obtuse, repand, upper ones dilated; cup deep, with the upper scales setose; acorn ovate, turgid.

HAB. Limestone hills. Penn. and throughout the Western and South Western States. May. ♀.—A large tree with the fruit larger than in any other American species.—The wood is of excellent quality. *Overcup White Oak.*

17. *Q. oliviformis Mich.*: leaves oblong, smooth, glaucous beneath, deeply and unequally sinuate-pinnatifid; cup very deep, crenate above; acorn elliptic-oval.

HAB. Hills. N. Y. to Vir. May. ♀.—A tree somewhat resembling the preceding.—Michaux credits it to the banks of the Hudson near Albany, but I have never met with it in this vicinity.

18. *Q. alba Linn.*: leaves oblong, pinnatifid-sinuate, pubescent beneath; lobes linear-lanceolate, obtuse, very entire, attenuate at base; fruit pedunculate; cup deep, tuberculate; acorn ovate.

HAB. Fertile forests. Throughout the U. S. May. ♀.—One of the largest and most valuable of the American forest trees, often 80–100 feet high, and 3–7 in diameter. Bark white. Leaves pubescent beneath when young.—Timber firm and durable, and of great use in ship building and in many other arts.

White Oak.

†† *Leaves entire, dentate.*

19. *Q. prinus* Linn. : leaves on long petioles, obovate, acute, pubescent beneath, coarsely toothed ; teeth unequal, dilated, callous at the point ; cup deep, attenuate at base ; acorn ovate.—*Q. prinus palustris* Mich.

HAB. Shady woods. N. Y. to Flor. May. ♀.—A large tree. *Leaves* large, on petioles about an inch long. *Cup* hemispherical, enclosing about one third of the acorn, on short peduncles. *Acorn* large.—Timber inferior to that of the preceding, but often employed indiscriminately with it. *Swamp Chesnut Oak.*

20. *Q. bicolor* Willd. : leaves on short petioles, oblong-obovate, whitish tomentose beneath, coarsely toothed, very entire at the base ; teeth unequal, dilated, rather acute, callous at the summit ; fruit in pairs, on long peduncles ; cup hemispherical ; acorn oblong-ovate.—*Q. prinus discolor* Mich. f.

HAB. Low woods and swamps. N. Y. to Car. May. ♀.—A large tree, with the bark separating into large flat scales or plates. *Leaves* variable. *Acorn* large, in a small cup.—Its timber is in less repute than that of many other species. *Swamp White Oak.*

21. *Q. montana* Willd. : leaves on petioles, broad-obovate, oblong, white tomentose beneath, shining above, coarsely toothed, obtuse and unequal at the base ; teeth nearly equal, very obtuse ; fruit in pairs, on short peduncles ; cup hemispherical ; scales tuberculate, rugose ; acorn ovate.—*Q. prinus monticola* Mich.

HAB. In rocky situations. N. Y. to Car. May. ♀.—A tree of less size than the two preceding.—Its wood resembles the white oak in strength, and its bark is highly esteemed by tanners. For fuel it is scarcely exceeded in value by any of our trees.

Rock Chesnut Oak.

22. *Q. castanea* Muhl. : leaves on long petioles, oblong-lanceolate, obtuse at base, acuminate, tomentose beneath, coarsely toothed ; teeth unequal, dilated, acute, callous at the point ; cup hemispherical ; acorn ovate, subglobose.—*Q. prinus acuminata* Mich.

HAB. Mountains. N. Y. to Geor. May. ♀.—A tree 60—70 feet high. *Leaves* on long petioles and narrower than those of the former. *Fruit* middle-sized, on short peduncles.—In name and use it is often confounded with *Q. prinus*. *Yellow Oak.*

23. *Q. chinquapin* Mich. : leaves on short petioles, obovate, acute at the base, coarsely toothed, glaucous beneath ; teeth nearly equal, dilated, callous at the point ; cup hemispherical ; acorn ovate.—*Q. prinoides* Willd.

HAB. Barrens. N. Y. to Geor. May. ♀.—A shrub from 3—4 feet high. *Acorns* small, numerous.—It occurs in tracts or patches intermingled with *Q. bannisteri*.

Chinquapin. Dwarf Chesnut Oak.

12. CASTANEA. Tourn.

Monoecious. STERILE FL. *Ament* very long, cylindrical.

Perianth single, of 1-leaf, 6-lobed. *Stamens* 5—20. **FERTILE FL.** 3, within a 5-lobed thickly muricated *involucre* or *cupule*. *Perianth* 5—6-lobed, having the rudiments of 12 stamens. *Styles* 6. *Nut* 1—2-seeded, invested with the enlarged *involucre*. *Monoecia. Polyandria.*

1. *C. vesca* Willd. : leaves lanceolate, acuminate, mucronately-serrate, smooth on both surfaces.—*Fagus castanea* Linn. Walt.

HAB. Dry woods. N. Y. to Car. W. to Ill. May, June. ♀.

—A large tree, and one of the most useful. *Leaves* 6 inches long, pubescent beneath when young. *Spikes* of sterile flowers as long as the leaves, yellowish. *Nuts* generally 3.—The American species appears to be identical with the European, although by some botanists it is considered distinct. The wood is extremely durable and is highly esteemed for posts and rails to construct fences. *Chesnut Tree.*

2. *C. pumila* Willd. : leaves oblong, acute, mucronate-serrate, white tomentose beneath.

HAB. Sandy fields and woods. N. J. to Geor. May. ♀.—A shrub or small tree—at the North being seldom more than 10 or 12 feet high. *Leaves* smaller than in the preceding, oval and obovate. *Nut* small, ovate, acute, very sweet.—The wood is durable, but too small to be converted to much use. *Chinquapin.*

13. CORYLUS. Linn.

Monoecious. STERILE FL. *Ament* cylindrical; scales 3-cleft. *Perianth* none. *Stamens* 8. *Anthers* 1-celled. **FERTILE FL.** *Perianth* obsolete. *Ovaries* several. *Stigmas* 2. *Nut* ovate, surrounded with the enlarged coriaceous and scaly *involucre* forming the *cupule*. *Monoecia. Polyandria.*

1. *C. americana* Walt. : leaves roundish, cordate, acuminate; involucre roundish-campanulate, larger than the subglobose nut; border dilated, many-cleft.

HAB. Shady woods. Can. to Flor. March, April. ♀.—Shrub 4—8 feet high, with virgate branches, pubescent when young. *Nuts* large, ovate; eatable. *Hazel Nut. Wild Filbert.*

2. *C. rostrata* Ait : leaves oblong-ovate, acuminate; stipules linear-lanceolate; involucre tubular-campanulate, longer than the nut, 2-parted, with incised segments.

HAB. Mountains. Can. to Car. May. ♀.—Shrub 3—4 feet high. *Leaves* on short petioles, slightly cordate. *Involucre* terminating in a tube 1 1-2 inches long. *Beaked Hazel.*

14. FAGUS. Linn.

Monoecious. STERILE FL. *Ament* globose. *Perianth* 6-cleft. *Stamens* 5—12. **FERTILE FL.** 2, within a 4-lobed prickly *involucre* or *cupule*. *Perianth* with 4—5 minute

lobes. *Ovaries* 3-celled, 2 abortive. *Styles* 3. *Nut* 1-seeded, invested by the enlarged involucre.

Monoecia. Polyandria.

1. *F. sylvatica* Linn.: leaves ovate, acuminate, slightly toothed, ciliate on the margin, acute at base; nut ovate, triquetrous, obtuse, but mucronate.—*F. sylvestris* Mich.

HAB. Woods. N. H. to Geor. May. ½.—A large and beautiful tree. Leaves of a bright green.—According to Mr. Nuttall this species is dioecious. *White Beach.*

2. *F. ferruginea* Ait.: leaves ovate-oblong, acuminate, pubescent beneath, coarsely toothed, obtuse and unequally subcordate at base; nut acutely triquetrous, very acute.

HAB. Woods. Throughout the N. S. May, June. ½.—A large tree, with smooth bark. Leaves ribbed. Fruit muricate.—The wood is of a darker colour than the preceding. Both species are highly valuable timber trees, although the wood is not very durable. *Red Beach.*

ORDER CXII. ULMACEÆ. Mirb. Lind.

Flowers monoclinous or polygamous. *Perianth* divided, campanulate, inferior. *Stamens* definite, inserted into the base of the calyx; erect in æstivation. *Ovary* superior, 2-celled; *ovules* solitary, pendulous; *stigmas* 2, distinct. *Fruit* 1 or 2-celled, indefinite, membranous or drupaceous. *Seed* solitary, pendulous; *albumen* none or small in quantity; *embryo* with foliaceous cotyledons.

Trees or *shrubs* with scabrous alternate simple deciduous leaves and stipules.

I. ULMUS. Linn.

Flowers perfect. *Perianth* campanulate, 4—5-cleft. *Stamens* 5—8. *Styles* 2. *Fruit* compressed, with a broad membranaceous border, (*Sámara*.) *Pentandria. Digynia.*

1. *U. americana* Linn.: branches smooth; leaves somewhat doubly serrate, unequal at the base; serratures uncinately acuminate; flowers pedicellate; fruit fimbriate.

HAB. Low grounds. N. Y. to Car. W. to Miss. April, May. ½.—A large tree, with long recurved branches. Flowers purplish, in small fascicles, generally appearing before the leaves. *Stamens* from 4—8.—In favorable situations the most magnificent tree on the continent. *White Elm.*

2. *U. fulva* Mich.: branches scabrous, white; leaves ovate-oblong, much acuminate, pubescent on both sides; buds tomentose, with a thick tawny wool; flowers sessile.

HAB. Mountains. N. Y. to Car. May. ♀.—Tree of smaller size than the preceding. *Leaves* much larger, very rough. *Stamens* 7.—The inner bark contains a large portion of mucilage, and has been employed for medicinal purposes. *Slippery Elm*.

3. *U. nemoralis* Ait. : leaves oblong, somewhat glabrous, equally serrate, nearly equal at base ; flowers sessile.

HAB. Banks of streams. N. Eng. to Vir. ; scarce. April, May.
♀.—Pursh. *River Elm*.

4. *U. racemosa* Thomas : flowers in racemes ; pedicels in distinct fascicles, united at their bases.

HAB. Western part of N. Y. ♀.—A tree with the lower branches having irregular corky excrescences. *Leaves* ovate, acuminate, auriculate on one side, doubly serrate, smooth above, under side and ribs minutely pubescent. *Racemes* of several fascicles, 1—2 1-2 inches long. *Flowers* pedicellate, 2—4 in a fascicle. *Calyx* 7—8-cleft. *Stamens* 7—10. *Stigmas* 2, recurved. *Samaras* ovate, pubescent, margin densely fringed.—Described and figured by David Thomas, Esq., in Silliman's Journal, xix. 170.

2. CELTIS. Linn.

Perfect or polygamous. *Perianth* 5-lobed. *Stamens* 5, subsessile. *Styles* 2. *Drupe* globose, 1-seeded.

Pentandria. Digynia.

1. *C. occidentalis* Linn. : leaves ovate, acuminate, equally serrate, unequal at base, scabrous above, hairy beneath ; flowers small, solitary.

HAB. Woods. Can. to Car. May. ♀.—A middle-sized tree. *Flowers* small, greenish-white. *Drupe* nearly globose, purple.

Hoop Ash. Beaver Wood.

2. *C. crassifolia* Lam. : leaves ovate, acuminate, unequally serrate, subcoriaceous, scabrous on both sides, unequal at the base ; peduncles mostly 2-flowered.

HAB. Penn. Mich. W. to Miss. May. ♀.—Smaller than the former. *Hack-berry*.

3. *C. pumila* Pursh : leaves broad-ovate, acuminate, equally serrate, unequal at the base, smooth on both sides, the younger ones only pubescent ; peduncles mostly 3-flowered ; fruit solitary.—*C. occidentalis* var. *pumila* Muhl.

HAB. Banks of rivers. Md. and Vir. Pursh. May. ♀.—A low shrub. *Drupe* solitary, brown and glaucous.

ORDER CXIII. JUGLANDEÆ. De Cand. Lind.

Flowers diclinous. STERILE FL. in an ament. *Perianth* scaly, oblique, irregularly lobed. *Stamens* inserted on the receptacle, indefinite (3—36) ; *filaments* short, distinct ; an-

thers thick, 2-celled; bursting longitudinally. FERTILE FL. with a single or double perianth, the outer 4-parted, the inner (when present) of 4 pieces. Ovary inferior, 1-celled; ovule solitary, erect; styles 1—2, very short or none; stigmas large, either 2 and lacerated, or discoid and 4-lobed. Fruit drupaceous, 1-celled, with 4 imperfect partitions. Seed 4-lobed; embryo large; albumen none; cotyledons fleshy, 2-lobed, wrinkled; radicle superior.

Trees. Leaves alternate, unequally pinnate.

1. JUGLANS. Linn.

Monoecious. STERILE FL. Ament imbricate; scales mostly 5-parted. Perianth 5 or 6-parted. Stamens 18—36. FERTILE FL. Perianth double, each 4-parted. Styles 1 or 2. Drupe partly spongy; nut rugose and irregularly furrowed. Monoecia. Polyandria.

1. *J. nigra* Linn.: leaves pinnate; leaflets numerous, ovate-lanceolate, serrate, subcordate, tapering to the summit; the under surface and petioles slightly pubescent; fruit globose, scabrous, dotted; nut corrugated.

HAB. Fertile woods. N. Y. to Flor. W. to Miss. April, May.

h.—A tree 50—60 feet high. Leaves pinnate, with from 15—21 leaflets. Sterile aments axillary.—Timber compact, fine grained, heavy and dark coloured, when exposed to the air.

Black Walnut.

2. *J. cinerea* Linn.: leaves pinnate; leaflets numerous, lanceolate, serrate, rounded at the base, soft pubescent beneath; petioles villous; fruit oblong-ovate, with a terminal projection, viscid and hairy, on a long peduncle; nut oblong, acuminate, conspicuously sculptured.—*J. cathartica* Mich. f.

HAB. Woods. Can. to Geor. April, May. h.—A large tree.

Leaves pinnate, with 15—17 pubescent leaflets.—Habit and fructification very similar to the preceding, but the fruit is oblong, with a protuberant summit, and the nut much more deeply and irregularly sculptured. Medicinal. *Big. Med. Bot.* i. 115.

Butter-nut. Oil-nut.

2. CARYA. Nutt.

Monoecious. STERILE FL. Ament imbricated; scales 3-parted. Perianth none. Stamens 4—6. FERTILE FL. Perianth 4-cleft, superior. Style none. Stigma partly discoid, 4-lobed. Pericarp 4-valved. Nut quadrangular, even.

Monoecia. Polyandria.

1. *C. sulcata* Nutt. : leaflets generally 9, obovate-lanceolate, acuminate, serrate, pubescent beneath, terminal one subsessile and attenuate at base ; fruit roundish, 4-angled ; nut oblong, slightly compressed, conspicuously mucronate.—*Juglans sulcata* Willd.—*J. mucronata* Mich. and *J. laciniosa* Mich. f.

HAB. Fertile soils. N. Y. to Car. April, May. h.—A large tree. *Leaves* pinnate, with 7—9 leaflets. Sterile *aments* 3-parted, very long, peduncled. *Nut* large, oblong, with a very thick 4-parted pericarp.—This, like most of the species, is valuable for fuel.

Thick Shell-bark Hickory.

2. *C. alba* Nutt. : leaflets 5—7, on long petioles, oblong-lanceolate, acuminate, sharply serrate, villous beneath, the terminal one sessile ; aments filiform, smooth ; fruit depressed-globose ; nut compressed, oblique.—*Juglans alba* Mich.—*J. compressa* Willd.—*J. squamosa* Mich. f.

HAB. Fertile woods. Can. to Car. and W. to Miss. April, May. h.—A very large and valuable tree, with the bark separating in large flat scales or plates. *Nut* with a thinner shell than that of most other species and of a fine flavor ; *pericarps* thin, globose, depressed at the summit.—Timber much prized in consequence of the fineness of the grain and the elasticity of the fibre.

Shell or Shag-bark Hickory.

3. *C. tomentosa* Nutt. : leaflets generally 7—9, oblong-lanceolate, acuminate, smooth, slightly serrate, pubescent and scabrous beneath ; terminal one nearly sessile ; ament filiform, very long, tomentose ; fruit subglobose, smooth ; pericarp very thick ; nut somewhat 6-angled, the shell very thick and hard.—*Juglans tomentosa* Mich.—*J. alba* Linn.

b. maxima Nutt. : fruit twice the ordinary size, as large as an apple.

HAB. Fertile woods. N. Y. to Geor. April, May. h.—A large tree. *Leaflets* sometimes 5, but generally 7, very pubescent beneath. *Fruit* large. *Nut* compressed, somewhat oval, with 4 prominent angles, and 2 obscure ones on the ends, thick shelled and hard. Timber valuable. Var. *b.* is found near Philadelphia.

Common Hickory.

4. *C. amara* Nutt. : leaflets generally 9, ovate-oblong, acuminate, sharply serrate, smooth on both sides ; fruit subglobose ; nut smooth, mucronate, with the shell fragile.—*Juglans amara* Mich.—*Hicorius amara* Raf.

HAB. Dry fertile woods. Can. to Car. May. h.—A large tree. *Leaflets* 9, sessile, with the nerves and midrib pubescent. *Nut* small, almost obcordate, with bitter and astringent kernels. —Often confounded with the next species.

Bitter-nut. Swamp Hickory.

5. *C. porcina* Nutt. : leaflets generally 7, lanceolate, acuminate, serrate, smooth on both sides ; fruit oblong-globose or obcordate ; nut smooth, very hard.—*Juglans porcina* Mich.—*J. obcordata* and *J. glabra* Willd.

HAB. Fertile woods. N. Y. to Geor. May. h.—A very large

tree. *Leaflets* 5—7. *Fruit* small, variable, with a very bitter kernel.—Wood very tough. *Pig or Hog-nut. Broom Hickory.*

ORDER CXIV. CONIFERÆ. *Juss. Lind.*

Flowers monoecious or dioecious. **STERILE** monandrous or monadelphous, collected in an ament about a common rachis; *anthers* 2 or many-lobed, bursting outwardly; often terminated by a crest, which is an uncovered portion of the scale, out of which each stamen is formed. **FERTILE** usually in strobiles or cones, sometimes solitary. *Ovary* none (in the solitary flower,) or spread open (in the cone) and resembling a flat scale, destitute of style or stigma, arising from the axil of a membranous bract; *ovules* exposed; in the cones in pairs on the face of the ovary, inverted; in the solitary flower erect. *Fruit* a solitary naked seed, or a cone. *Seeds* with a hard crustaceous integument; *embryo* in the midst of oily albumen; *radicle* next the apex of the seed, having an organic connexion with the albumen.

Trees or shrubs, with a branched trunk, abounding in resin. *Leaves* with the veins parallel to each other.

1. JUNIPERUS. *Linn.*

Dioecious, rarely monoecious. **STERILE FL.** *Ament* ovate; scales verticillate, peltate. *Anthers* 4—8, 1-celled. **FERTILE FL.** *Ament* globose; scales 3, concave, coadunate. *Stigma* gaping. *Berry* with 3 bony 1-seeded *nuts*, surrounded with the united and fleshy scales.

Dioecia. Monadelphia.

1. *J. communis* *Linn.* : leaves ternate, spreading, mucronate, longer than the berry.

b. depressa *Pursh.* : stems prostrate.

HAB. Rocky banks of streams. Can. and N. S. May. *h.*—A shrub with prostrate and spreading branches, forming large beds. *Leaves* sharply mucronate, glaucous above, shining below. *Berries* purple. Medicinal. *Big. Med. Bot.* iii. 44. *Juniper*

2. *J. virginiana* *Linn.* : trunk arboreous; upper leaves imbricated in four rows, ovate, pungently acute.

HAB. Woods. Can. to Geor. May. *h.*—A middle-sized tree, with horizontal branches. *Berries* covered with a blue powder. —Wood light and very durable. *Leaves* resembling *Savin* in their medicinal properties. *Red Cedar.*

3. *J. prostrata* *Mich.* : stems prostrate, creeping; leaves imbricate,

in four rows, ovate, submucronate, glandular in the middle, appressed; berries large and conspicuously tubercular.—*J. repens* Nutt.

HAB. Sandy soils. Can. and N. S. W. to Miss. May. ♀.—
A low shrub, with long and creeping branches, 2 yards long.

2. THUYA. Linn.

Monoecious. STERILE FL. *Ament* imbricate. *Perianth* none. *Anthers* 4, sessile. FERTILE FL. *Strobile* with the scales 2-flowered. *Nut* 1, winged.

Monoecia. Monadelphia.

T. occidentalis Linn. : branches ancipitous; leaves imbricated in 4 rows, ovate-rhomboidal, appressed, tuberculate; strobiles obovate; inner scales truncate, gibbous below the summit.

HAB. Mountains. Can. to Car. May. ♀.—A small tree, with very tough branches. *Leaves* resembling scales.

American Arbor Vita.

3. CUPRESSUS. Linn.

Monoecious. STERILE FL. *Ament* ovate; scales peltate. *Perianth* none. *Anthers* 4, sessile. FERTILE FL. *Strobile* with the scales peltate. *Perianth* none. *Ovaries* 4—8, under each scale of the strobile. *Nuts* angular, compressed.

Monoecia. Monadelphia.

1. *C. disticha* Linn. : leaves distichous, flat, deciduous; sterile flowers leafless, paniculate; strobile subglobose.

HAB. Swamps. N. J. to Flor. W. to Miss. May. ♀.—One of the largest trees of the forest, occurring in extensive swamps, especially at the South. *Leaves* small, linear and acute. *Cone* with an irregular surface.—Timber very durable. * *Cypress.*

2. *C. thyoides* Linn. : branches compressed; leaves imbricate in four rows, ovate, tuberculate at base; strobile globose.

HAB. Swamps. N. Y. to Car. May. ♀.—A middle-sized tree, composing the *cedar swamps* of the Middle and Southern States.
—Wood light, soft and durable. *White Cedar.*

4. PINUS. Linn.

Monoecious. STERILE FL. *Scales* peltate. *Perianth* none. *Anthers* 2, sessile, 1-celled. FERTILE FL. in an ovate or conical strobile. *Scales* closely imbricate, 2-flowered. *Nut* winged, covered by the scales of the cone.

Monoecia. Monadelphia.

* *Leaves* 2—5, sheathing at base. *Scales* of the cone thickened at the summit. PINUS.

1. *P. inops* Ait. : leaves short, in pairs; strobile recurved, oblong-conic, as long as the leaves; spines of the scales subulate, straight.

HAB. Barrens. N. Y. to Car. May. ♀.—A middle-sized tree, with straggling branches and full of resin. *Leaves* 1—2 inches long. *Cones* about 2 inches long. *Pitch or Scrub Pine.*

2. *P. resinosa* Ait. : leaves elongated, in pairs ; sheaths elongated ; strobile ovate-conic, rounded at base, subsolitary, half the length of the leaves ; scales dilated in the middle, unarmed.—*P. rubra* Mich.

HAB. Woods. Can. and N. S. May. ♀.—A very large tree. Found on the Helderburg mountains near Albany.

Norway Pine.

3. *P. banksiana* Lamb. : leaves short, in pairs, rigid, divaricate, oblique ; strobile recurved, tortuous ; scales unarmed.—*P. rupestris* Mich. f.

HAB. Rocky grounds. Subarc. Amer. to Maine. April, May. ♀.—A small tree, with long spreading flexible branches.

Scrub Pine.

4. *P. variabilis* Lamb : leaves elongated, in pairs and threes, channelled ; strobile ovate-conic, mostly solitary ; spines of the scales incurved.—*P. mitis* Mich. f.

HAB. Forests. N. Eng. to Geor. May. ♀.—A large tree. *Leaves* 4—5 inches long, dark green. *Cone* solitary, 2—3 inches long. *Yellow Pine.*

5. *P. rigida* Linn. : leaves in threes ; sheaths short ; sterile aments erect-incumbent ; strobile ovate, scattered or aggregated ; spines of the scales reflexed.

HAB. Barrens. N. Eng. to Vir. May. ♀.—A large tree. *Leaves* 4—6 inches long. *Cones* usually clustered, 2—4 inches long.—The wood abounds in turpentine. *Pitch Pine.*

6. *P. serotina* Mich. : leaves elongated, in threes ; sterile aments incumbent, nearly erect ; strobile ovate ; spines of the scales straight, slender.

HAB. Margin of swamps. N. J. to Car. May. ♀.—A small tree. *Leaves* 6—8 inches long. *Cones* larger and more globular than in the preceding. *Pond Pine.*

7. *P. strobus* Linn. : leaves in fives, slender ; sheaths very short ; strobile pendulous, cylindrical, longer than the leaves ; scales loose.

HAB. Fertile soils. Can. to Vir. May. ♀.—A very large and valuable tree, sometimes attaining the height of 140 feet. *Leaves* 4 inches long. *Cone* solitary, very long.—Timber soft fine-grained and light. *White or Weymouth Pine.*

** *Leaves fasciculate, deciduous.* LARIX. *

8. *P. pendula* Ait. : leaves fasciculate, deciduous ; strobile oblong ; margin of the scales inflexed ; bracts panduræform, with the point attenuated.

HAB. Cedar swamps. Can. and N. Y. April, May. ♀.—A middle-sized tree, which differs from the preceding by its leaves growing in tufts or fascicles, and in their being deciduous. *Cone* small, covered with soft scales. *Hackmatack. Tamarack.*

9. *P. microcarpa* Lamb. : leaves fasciculate, deciduous ; strobile roundish, few-flowered ; scales reflexed ; bracts elliptic, obtusely acuminate.—*P. pendula* Willd.—*Larix americana* Mich.

HAB. Mountains. N. S. N. to Subarc. Amer. May. ♀.—A large tree, resembling the preceding, but according to Pursh and Lambert, specifically distinct. Red Larch.

*** *Leaves solitary, distinct at base. Scales of the cone even and attenuated.* ABIES.

10. *P. balsamea* Linn. : leaves solitary, flat, emarginate or entire, glaucous beneath, somewhat pectinate at the summit, nearly erect, below recurved-spreading ; strobile cylindrical, erect ; bracts short, obovate, conspicuously mucronate, somewhat serrulate.—*Abies balsamifera* Mich.

HAB. Mountains. N. S. N. to Subarc. Amer. May. ♀.—A tree 40—50 feet high. *Leaves* 6—10 lines long. *Cone* solitary, erect. American Silver Fir. Balsam Fir.

11. *P. fraseri* Pursh : leaves solitary, flat, shorter, emarginate, glaucous beneath, subsecund, erect above ; strobile ovate-oblong, erect ; bracts elongated, reflexed, oblong-cuneate, emarginate, shortly mucronate, incisely toothed. *P. balsamea* var. *fraseri* Nutt.

HAB. Broad Mountains. Penn. Pursh. May. ♀.—Resembles the former, but differs in being a smaller tree, the leaves shorter and more erect, and the cones not one-fourth the size.

Double Balsam Fir.

12. *P. canadensis* Linn. : leaves solitary, flat, denticulate, somewhat distichous ; strobile ovate, terminal, scarcely longer than the leaves.—*Abies canadensis* Mich.

HAB. Mountains. Can. to Car. May. ♀.—A tree sometimes attaining a very large size. *Leaves* 6—8 lines long. *Cones* very small.—Bark contains a great quantity of tannin.

Hemlock Spruce.

13. *P. nigra* Ait. : leaves solitary, 4-sided, every where scattered, erect, straight ; strobile ovate ; scales elliptical, undulate on the margin, erosely denticulate at the apex.—*A. nigra* Mich. f.

HAB. Swamps. Subarc. Amer. to Car. May. ♀.—A large tree, usually having a pyramidal summit. *Leaves* half an inch long, dark green. *Cones* oval, 1—2 inches long. Black Spruce.

14. *P. rubra* Lamb. : leaves solitary, subulate ; strobile oblong, obtuse ; scales rounded, somewhat 2-lobed, entire on the margin.

HAB. Hudson's Bay. Pursh. Maine. Torr. May. ♀.

Red Spruce.

15. *P. alba* Ait. : leaves solitary, 4-sided, incurved ; strobile subcylindrical, loose ; scales obovate, very entire.

HAB. Swamps. Subarc. Amer. to Car. May. ♀.—A small tree. *Leaves* 5—8 lines long, less crowded than in the preceding. *Cones* slender, 2 inches long. White Spruce.

5. TAXUS. *Linn.*

Flowers [dioecious or monoecious, surrounded with many scales. STERILE FL. *Stamens* 8—10; filaments monadelphous. *Anthers* peltate, 6—8-celled; cells dehiscent beneath. FERTILE FL. *Style* none. *Stigma* concave. *Drupe* fleshy, open at the extremity. *Nut* 1-seeded.

Dioecia. Monadelphia.

T. canadensis Willd.: leaves linear, distichous, revolute on the margin; receptacle of the sterile flower globose.—*T. baccata minor Mich.*

HAB. Moist rocky places. Can. and N. S. March, April. *h.*
—*Shrub* 4—8 feet high. *Leaves* resembling those of *Pinus canadensis*, but larger. *Fruit* having the appearance of a berry.

Yew.

CLASS II. ENDOGENÆ OR MONOCOTYLEDONOUS PLANTS.

Trunk usually cylindrical, with no perceptible distinction of bark, wood and pith, increasing in diameter by the addition of new matter to the centre. *Leaves* frequently sheathing at the base and not readily separating from the stem by an articulation, mostly alternate, with parallel simple nerves and minute transverse veins. *Embryo* with but one cotyledon; if with two, then the additional one is imperfect and alternate with the other; radicle usually enclosed within the substance of the embryo, through which it bursts when germinating.

SUBCLASS I. PETALOIDEÆ. *Lind.*

Stamens and *pistils* naked or covered by verticillate floral envelopes.

ORDER CXV. HYDROCHARIDEÆ. *Juss. Lind.*

Flowers spathaceous, monoclinal or diclinal. *Perianth* with the limb 6-parted, the 3-outer segments herbaceous; the 3 inner petaloid. *Stamens* epiginous, definite or indefinite. *Ovary* solitary, 1 or many-celled; *ovules* indefinite, often pa-

rietal ; *stigmas* 3—6. *Fruit* dry or succulent, indehiscent, 1 or many-celled. *Seeds* without albumen ; *embryo* undivided, cylindrical ; *radicle* at the opposite extremity from the hilum.

Floating plants. *Leaves* with parallel nerves, sometimes spiny.

1. UDORA. Nutt.

Dioecious. *Spathe* bifid. *Perianth* 6-parted ; 3 inner segments petaloid. **STERILE FL.** *Stamens* 9, 3 of them interior. **FERTILE FL.** *Tube* of the perianth very long. *Sterile filaments* 3. *Utriculus* about 3-seeded. *Seeds* cylindric.

Dioecia. Enneandria.

U. canadensis Nutt. : leaves verticillate in threes and fours, lanceolate, oblong or linear, serrulate ; tube of the perianth filiform.—*Elo-dea canadensis* Mich.—*Serpicula verticillata* Muhl.

HAB. Still waters. Can. to Vir. Aug. 24.—*Stem* submersed, diffusely dichotomous. *Flowers* axillary, very small, white. The plant without flowers resembles an aquatic moss.

2. VALLISNERIA. Linn.

Dioecious. **STERILE FL.** *Spathe* ovate, 2—4-parted. *Spadix* covered with minute flowers. *Perianth* 3-parted. *Stamens* 2. **FERTILE FL.** *Scape* very long and spiral. *Spathe* bifid, 1-flowered. *Perianth* elongated, 6-parted ; the alternate segments linear. *Style* none. *Stigmas* 3, ovate, bifid. *Capsule* elongated, cylindrical, 3-toothed, 1-celled, many-seeded ; the seeds attached to the sides. *Dioecia. Diandria.*

V. spiralis var. *americana* Torr. leaves linear and obtuse, equal from the base, 3-nerved, margin minutely and aculeately serrulate ; sterile peduncles very short ; fertile ones spiral.—*V. americana* Mich.

HAB. Still water. N. Y. to Flor. W. to Ill. Aug. 24.—*Leaves* all radical, 2—3 lines broad and very long.

ORDER CXVI. ORCHIDÆ. Juss. Lind.

Perianth with a ringent 6-parted limb ; outer segments usually coloured, of which the odd one is often uppermost by a twisting of the ovary ; inner segments more petaloid, the odd one or the *lip* being frequently lobed and unlike the others, and often spurred at the base. *Stamens* 3, in a double row, epiginous, united in a central column, the two lateral ones, or the central one abortive ; *anther* persistent or deciduous, 2—4 or 8-celled ; *pollen* powdery or cohering in definite or indefi-

nite waxy masses (*pollinia*.) Ovary 1- rarely 3-celled ; ovules indefinite ; style forming part of the column of the stamens ; stigma a viscid cavity in front of the column. Capsule 3-ribbed, 3-valved, rarely baccate. Seeds numerous ; albumen none ; embryo a solid fleshy mass.

Herbs. Roots tuberous or fibrous. Leaves simple, quite entire.

* Pollen simple or consisting of granules in a lax state of cohesion.

1. GOODYERA. Brown.

Perianth ringent ; the 2 outer or lateral segments placed beneath the lip, which is gibbous at the base and undivided at the extremity. Column free. Pollen angular.

Gynandria. Monandria.

1. *G. pubescens* Brown : radical leaves ovate, petiolate, reticulate ; scape sheathed and with the flowers pubescent ; lip ovate, acuminate ; segments of the perianth ovate.

HAB. Shady woods. Can. to Flor. July, Aug. 2f.—Scape 6—10 inches high. Leaves radical, dark green, veined with white. Flowers white, in an oblong spike.

Rattlesnake Plantain.

2. *G. repens* Brown : radical leaves ovate, petiolate, reticulate ; scape sheathed and with the flowers pubescent ; flowers unilateral ; lip and segments lanceolate.

HAB. Shady woods. N. S. July. 2f.—Root creeping. Scape 6—8 inches high. Leaves less distinctly veined than in the preceding. Flowers greenish-white.

2. SPIRANTHES. Rich.

Spike spiral ; inner segments of the perianth connivent. Lip unguiculate, parallel with the column, with 2 calli at the base, entire. Anther terminal, peduncled at the end. Ovary oblique.

Gynandria. Monandria.

1. *S. tortilis* Rich. : radical leaves linear ; scape sheathed ; flowers spirally secund ; lip trifid ; the middle lobe large and crenulate.—*Neottia tortilis* Swartz. Pursh.—*Ophrys astivalis* Mich.

HAB. Low meadows. N. Y. to Car. June, July. 2f.—Scape a foot high. Flowers white.

2. *S. gracilis* Beck : radical leaves ovate ; scape sheathing ; flowers in a spiral row ; lip obovate, curled.—*Neottia gracilis* Big.

HAB. Dry woods. Mass. July. 2f.—Scape 8—12 inches high, erect, with a few sheathing scales or leaflets. Leaves on short

petioles, sometimes falling off before the plant flowers. *Flowers* white, in a twisted spike.—According to Dr. Bigelow, the spike is sometimes unilateral and scarcely twisted, and the flowers more slender, when it forms his var. *secunda*. *Ladies' Tresses*.

3. *S. cernua* Rich.: leaves lanceolate, nerved; stem sheathing; flowers in a dense spike, cernuous; lip oblong, entire, acute.—*Neottia cernua* Willd.

HAB. Moist grounds. Can. to Car. July, Aug. 2l.—*Scape* 6 inches to 2 feet high, sometimes a little leafy. *Leaves* varying from linear-lanceolate to oblong-lanceolate. *Flowers* greenish-white.—It is liable to considerable variation. See Torr. Comp. 320.

3. LISTERA. Brown.

Perianth irregular. *Lip* 2-lobed, sessile, with no calli. *Column* wingless, (minute.) *Anther* fixed by its base. *Pollen* farinaceous. *Gynandria*. *Monandria*.

1. *L. cordata* Brown: stem with only 2 opposite roundish cordate leaves; raceme loose; column without any appendage behind; lip elongate, 2-toothed at base, deeply bifid, the segments divaricate and acute.—*Ophris cordata* Mich.

HAB. Sphagnous swamps. Can. Ver. N. J. May. 2l.—*Stem* 4—8 inches high. *Leaves* roundish, cordate, veined, smooth, mucronate. *Raceme* 7—15-flowered. *Flowers* distant, minute, green and purple. *Two-leaf-blade*.

2. *L. convallarioides* Nutt.: stem with only 2 opposite oval-roundish leaves, pubescent above; raceme few-flowered, (4—6); column porrected; lip oblong, dilated, and obtusely 2-lobed at the extremity.—*Epipactis convallarioides* Pursh. excl. syn.

HAB. Swamps. Can. to Car. May. 2l.—*Stem* 6 inches high and very slender. *Flowers* dark brown and green, larger than in the preceding.—These two species have been confounded by many of our botanists—when in fact they are entirely distinct, and it is even doubtful whether they belong to the same genus. *Ophris cordata* of Michaux given by Pursh as a synonym of his *Epipactis convallarioides*, belongs to the former.

4. POGONIA. Brown.

Lip sessile, cucullate, internally crested; 5 segments of the perianth distinct, without glands. *Pollen* farinaceous. *Gynandria*. *Monandria*.

1. *P. ophioglossoides* Brown: root fibrous; stem with an oval-lanceolate leaf and a foliaceous bract near the flower; lip fimbriate.—*Arethusa ophioglossoides* Linn.

HAB. Sphagnous swamps. Can. to Car. July. 2l.—*Root* fasciculate. *Stem* 8—12 inches high. *Flower* solitary, pale purple, nodding.

2. *P. verticillata* Nutt.: leaves 5, oblong-lanceolate, verticillate; flower solitary; 3 outer segments of the perianth very long and linear; the inner ones lanceolate, obtuse; lip 3-lobed, dilated, the middle lobe undulated.—*Arethusa verticillata* Willd.

HAB. Swamps. N. Y. to Geor. June, July. 2f.—*Root* fasciculate. *Stem* about a foot high. *Leaves* 5 in a whorl at the top of the stem. *Flower* solitary; outer segments brown, 2 inches long; inner ones short, paler and obtuse.

5. CALOPOGON. *Brown.*

Lip behind (or inverted,) unguiculate, the lamina bearded; 5 segments of the perianth distinct. *Column* free. *Pollen* angular. *Gynandria. Monandria.*

C. pulchellus *Brown*: radical leaves ensiform; scape few-flowered.—*Cymbidium pulchellum* Willd. *Pursh.*

HAB. Swamps. Can. to Flor. June, July. 2f.—*Root* bulbous. *Stem* 12—18 inches high. *Leaf* generally solitary, 8—10 long, sheathing the base of the stem. *Flowers* 3—4 in a terminal spike, large, purple.

6. CORALLORHIZA. *Brown.*

Lip produced behind, adnate with the spur or free. *Column* free. *Pollinia* 4, oblique, not parallel.

Gynandria. Monandria.

1. *C. verna* Nutt.: leafless; segments of the perianth linear-lanceolate, spreading; lip oblong, without spots, bidentate at the base, the apex recurved and ovate; spur obsolete, adnate.—*Cymbidium corallorhizon* *Muhl.*

HAB. Sphagnous swamps. N. S. May. 2f.—*Root* coralloid. *Scape* 5—6 inches high, with about 3 sheathing stipules. *Flowers* 7—15, small, yellowish-green. *Lip* nearly white, oblong-oval, without spots.—Mr. Nuttall in his "Genera of N. A. Plants," confounds this plant with the *C. innata* of Europe, a mistake which he corrects in his valuable paper on the species of *Corallorhiza*, indigenous to the United States, published in the Mem. of the Phil. Acad. of Nat. Sciences, from which the present descriptions are taken.

2. *C. odontorhiza* Nutt.: leafless; lip oval, undivided, spotted; spur obsolete, adnate; capsule subglobose.—*Cymbidium odontorhizon* Willd.—*Ophrys corallorhiza* *Mich.*

HAB. Roots of trees. Ver. to Car. Aug., Sept. 2f.—*Root* much branched. *Scape* 10—12 inches high, slender, with about 3 sheaths. *Flowers* numerous, purplish. *Lip* dilated, white and beautifully spotted. *Dragon's Claw.*

3. *C. multiflora* Nutt.: leafless; scape many-flowered, (15—30;) lip cuneate-oval, 3-parted, recurved, spotted; spur conspicuous adnate.—*C. innata* Nutt. *Gen.*

HAB. Roots of trees. N. Y. to Car. July—Sept. 2f.—Root coralloid, much branched. *Scape* a foot high, with 3—4-sheaths. *Raceme* with many-flowers which are purplish, with the lip white and spotted; spur very distinct, yellowish.

7. APLECTRUM. Nutt.

Lip unguiculate, not produced at the base. *Anther* situated below the summit of the column. *Pollinia* 4, oblique, lenticular. *Gynandria*. *Monandria*.

A. hiemalis Nutt. : leaf solitary, ovate, striate; lip trifid, obtuse, with the palate ridged; central lobe rounded, crenulate.—*Cymbidium hyemale* Willd. Pursh.

HAB. Shady woods. Can. to Flor. May, June. 2f.—Root bulbous. *Scape* a foot high, sheathed. *Flowers* brownish, at length pendulous. *Lip* dilated at the end and trifid.

8. ARETHUSA. Linn.

Lip united at base with the column, cucullate at the end, crested internally; 5 segments of the *perianth* united at base. *Pollen* angular. *Gynandria*. *Monandria*.

A. bulbosa Linn. : leafless; root bulbous; scape sheathed, 1-flowered.

HAB. Sphagnous swamps. Can. to Car. May, June. 2f.—*Stem* 6—10 inches high, the lower part with 3 or 4 sheaths. *Flowers* 1, rarely 2, terminal, large, purple. *Lip* curled, crenate, bearded in the middle.

9. TRIPHORA. Nutt.

Lip unguiculate, cucullate; 5 segments of the *perianth* distinct, equal and connivent, without glands. *Column* spatulate, complanate and apterous. *Pollen* farinaceous.

Gynandria. *Monandria*.

T. pendula Nutt. : root tuberous; stem leafy, about 3-flowered at the summit; leaves ovate, alternate; flowers pedunculate; peduncles at length recurved.—*Arethusa pendula* Willd.—*Pogonia pendula* Lind.

HAB. Roots of trees. N. Y. to Geor. W. to Ky. Sept. 2f.—*Stems* often in clusters, a span high, angular. *Leaves* 6 or 7, remote, very short, clasping, ovate and acute. *Flowers* 3 or 4, pale purple, on axillary and terminal peduncles.

** *Pollen* adhering in granules, which finally become waxy and are indefinite in number.

10. ORCHIS. Linn.

Perianth ringent. *Lip* with a spur on the under side at

the base. *Glands* of the *stalks* of the *pollinia* (1—2) contained in one common little *pouch*. *Gynandria*. *Monandria*.

O. spectabilis Linn. : lip obovate, undivided, erenate, retuse ; segments of the perianth connivent, longer ; spur clavate, shorter than the ovary ; bracts longer than the flower ; scape few-flowered, angular, scarcely longer than the erect leaves.—*Orchis humilis* Mich.—*Habernaria spectabilis* Spreng.

HAB. Shady woods. N. Y. to Car. June. 2f.—Scape 6—8 inches high, angular. *Leaves* mostly 2, large. *Flowers* large, purple and white.

11. PLATANThERA. Rich.

Perianth vaulted. *Lip* entire, with a spur. *Cells* of the *anther* widely divided at their base by the broad interposed stigma. *Glands* of the *pollinia* naked. *Lips* of the stigma absent. *Gynandria*. *Monandria*.

1. *P. orbiculata* Lind. : lip linear-lanceolate, obtuse ; three upper segments of the perianth erect, connivent ; lateral ones reflexed, oblique at the base ; spur longer than the germ ; scape with 2-orbicular leaves at the base.—*Orchis orbiculata* Pursh.

HAB. Shady woods. N. S. July. 2f.—Scape 12—18 inches high. *Leaves* very large, fleshy, spreading on the ground. *Flowers* greenish-white, in a loose spike.

2. *P. dilatata* Lind. : lip linear, very entire, rather obtuse, rounded and dilated at base ; spur as long as the lip, a little shorter than the germ ; stem leafy ; bracts as long as the flower.—*Orchis dilatata* Pursh.

HAB. Woods. N. S. July. 2f.—Stem 2—3 feet high. *Leaves* numerous. *Flowers* greenish or white.

12. HABERNARIA. Willd.

Perianth ringent. *Lip* spurred on the upper side at the base beneath. *Glands* of the *stalk* of the *pollinia* naked and distinct ; cells of the stalks adnate, or separated.

Gynandria. *Monandria*.

1. *H. herbiola* Brown : lip oblong obtuse, bidentate at base ; palate 1-toothed ; spur filiform, shorter than the germ ; bracts longer than the flower.

HAB. Swamps. N. S. June. 2f.—Stem 12—18 inches high. *Flowers* small, greenish.

2. *H. virescens* Spreng : lip lanceolate, crenate ; segments of the perianth connivent obtuse ; spur obtuse, didymous ; bracts longer than the flower.—*Orchis virescens* Willd.

HAB. Boggy meadows. Penn. July. 2f.—Stem 12—18 inches high. *Flowers* green.

3. *H. huronensis* Spreng. : lip lanceolate, acuminate, incurved ; segments of the perianth connivent, subulate ; spur about the length of the lip, incurved ; stem leafy.

HAB. Wet grounds. N. Y. W. to Mich. Aug. 24.

4. *H. integra* Spreng. : lip oblong, very entire, longer than the inner segments of the perianth ; spur subulate, longer than the germ ; bracts shorter than the flower ; stem leafy.—*Orchis integra* Nutt.

HAB. Swamps. N. J. July. 24.—*Flowers* orange yellow, somewhat smaller than in *H. ciliaris*, to which this species is nearly allied.

5. *H. obsoleta* Spreng. : lip lanceolate, very entire ; segments of the perianth erect ; spur obtuse, didymous, as long as the germ ; germ pedicellate ; bracts very short ; scape naked.—*Orchis obsoleta* Willd.

HAB. Shady places. N. Y. to Vir. ; rare. July, Aug. 24.—*Bracts* very short.

6. *H. bracteata* Brown : lip linear, retuse, obscurely 3-toothed at the extremity ; segments of the perianth connivent ; lateral ones ovate and broader ; spur obtuse, very short, didymous ; bracts spreading, much longer than the flower.—*Orchis bracteata* Willd.

HAB. Shady places. Vir. July, Aug. 24.—*Stem* 8—12 inches high, leafy. *Flowers* green, in a loose spike.

7. *H. tridentata* Hook. : lip ovate-lanceolate, obtuse, 3-toothed ; segments of the perianth connivent, obtuse ; spur filiform, incurved, longer than the germ.—*Orchis tridentata* Willd.

HAB. Swamps. Penn. and Vir. June, July. 24.—*Stem* 1—2 feet high. *Flowers* small, white.

8. *H. ciliaris* Brown. : lip oblong-lanceolate, pinnately ciliate, twice as long as the segments ; spur longer than the germ.

HAB. Swamps. Can. to Car. June, July. 24.—*Stem* 1—2 feet high, leafy, smooth. *Flowers* in a dense terminal spike, orange yellow. *Lip* finely lacinate or fringed.

9. *H. cristata* Brown : lip oblong, pinnately ciliate ; segments of the perianth rounded ; the two lateral ones toothed ; spur shorter than the germ.—*Orchis cristata* Mich.

HAB. Swamps. Penn. to Car. June, July. 24.—*Stem* 1—2 feet high, leafy. *Flowers* in a terminal spike, somewhat crowded, yellow. Distinguished from the former by its smaller flowers and more dense spike.

10. *blephariglottis* Hook. : lip lanceolate, fimbriate, as long as the upper segment of the perianth ; spur filiform, pendulous, longer than the germ.—*Orchis blephariglottis* Willd.

HAB. Swampy grounds. N. J. to Car. June, July. 24.—*Stem* 2 feet high. *Flowers* pure white. Resembles the former and is not very readily distinguished except by its white flowers.

11. *H. elliottii* Beck : lip ovate, toothed and crenate ; spur filiform,

attenuate, about as long as the germ; spike crowded; bracts as long as or a little longer than the flower.—*Orchis flava* ? Ell.—*O. flava* ? Torr.

HAB. Low grounds. N. S. to Geor. July. 2f.—Stem 2 feet high. Flowers in a short crowded spike, yellow. Lip with the sides toothed or crenate, almost fimbriate. Spur subulate, nearly acute at the point.—This plant appears to differ much from the original *O. flava* of Clayton. See Ell. Sk. ii. 485.

12. *H. fissa* Brown : lip 3-parted; lobes cuneiform, dentate; intermediate one 2-lobed; spur filiform, clavate at the extremity, ascending, longer than the germ.—*Orchis fissa* Willd.

HAB. Mountain meadows. Penn. to Vir. Pursh. July. 2f.—Stem 2—4 feet high. Flowers dark purple.

13. *H. incisa* Spreng. : lip 3-parted; lobes cuneiform, incisely dentate, the intermediate one emarginate; lateral segments of the perianth obtuse, subdentate; spur subulate, ascending, as long as the germ.—*Orchis incisa* Willd.

HAB. Meadows. N. Y. to Vir. July. 2f.—Stem 2—4 feet high. Flowers purple.

14. *H. fimbriata* Brown : lip 3-parted; lobes all cuneiform and incisely fimbriate; segments of the perianth oval, spreading, fimbriate-toothed; spur filiform, clavate, longer than the germ.—*Orchis fimbriata* Ait.

HAB. Meadows. Can. and N. S. July. 2f.—Stem 2 feet high. Leaves broad-lanceolate. Flowers purple, in a large spike.

15. *H. psycodes* Spreng. : lip 3-parted, capillary, many-cleft; segments of the perianth obtuse; spur filiform, clavate, ascending, a little longer than the germ.—*Orchis psycodes* Linn.—*O. lacera* Mich.

HAB. Meadows. Can. to Vir. July. 2f.—Stem 2 feet high. Leaves oblong. Flowers numerous, pale yellow, in a large terminal spike.

16. *H. fuscescens* Torr. : lip ovate, toothed at the base; segments of the perianth spreading; spur subulate, as long as the germ; bracts longer than the flower.—*Orchis fuscescens* Linn.

HAB. Mountain meadows. N. S. July. 2f.—Flowers in very long spikes, brownish-yellow. Bracts acuminate, very long.

17. *H. macrophylla* Goldie : lip linear-elongated, entire, acuminate; spur longer than the germ, terete, nearly straight; upper segments of the perianth ovate, acute; scape with broad oval suberect leaves at the base.

HAB. Shady woods near Montreal. Goldie. N. S. Torr.—The largest of the North American Orchideæ. Leaves 2, radical, 6—8 inches in length, thin and pellucid, elliptical. Scape with a few lanceolate scales. Flowers large and arranged in a lax spike of 5 or 6 inches in length. See Goldie in Edin. Phil. Jour. vi. 331.

18. *H. grandiflora* Torr. : lip dependent, twice as long as the segments of the perianth, 3-parted; lobes cuneiform, frimbriate, the mid-

ale one largest, with the fimbriæ connivent; lateral segments fimbriate; spur ascending, clavate, longer than the germ; leaves oval-oblong.—*Orchis grandiflora* Big.

HAB. Meadows. Mass. and N. H. Big. June. 2l.—Stem 2 feet high, thick and angular. Flowers in an oval-oblong spike, pale purple, twice the size of *H. fimbriata*, from which it also differs in the form of the lip.

13. TIPULARIA. Nutt.

Segments of the perianth spatulate, spreading. Lip entire, sessile, conspicuously calcarate below at the base. Column wingless, porrected, free. Anther operculate, persistent. Pollinia 4, parallel. Gynandria. Monandria.

T. discolor Nutt.—*Orchis discolor* Pursh.—*Lamodorum uniflorum* Muhl.

HAB. Pine woods. Ver. to Car. July. 2l.—Root bulbous. Leaf solitary, ovate, petiolate, plaited, smooth. Flowers in a terminal raceme, nodding, minute, greenish and destitute of bracts.

*** Pollen cohering in grains, which finally become waxy, and are definite in number.

14. LIPARIS. Rich.

Perianth spreading. Lip flat, expanded, entire, turned various ways. Column winged. Pollinia 4, with neither caudicula nor glands. Gynandria. Monandria.

1. *L. lilifolia* Rich.: leaves 2, ovate-oblong; scape angular; flowers racemose; segments of the perianth linear; lower ones setaceous, reflexed; lip concave, obovate, mucronate at the tip.—*Malaxis lilifolia* Swartz. Pursh.

HAB. Wet woods. Can. to Car. June, July. 2l.—Scape 6—8 inches high. Flowers in a short raceme, yellowish and white.

2. *L. correana* Spreng.: leaves 2, ovate-oblong; scape angular; segments of the perianth revolute on the margin; lip oblong keeled, recurved and cordate at the apex.—*Malaxis correana* Bart. Nutt.

HAB. Wet woods. Can. and N. S.—Stem 6—8 inches high, angled and winged, with 2 opposite leaves at the base. Flowers yellowish-green, in a terminal spike. Resembles *L. lasclii* of Europe, but that species has a triangular stem and its lip entire and shorter than the perianth. Dr. Graham in Edin. New Phil. Jour. v. 377.

15. MICROSTYLIS. Nutt.

Lip flat, sagittate or deeply cordate. Column very small, round. Pollinia 4, loose. Gynandria. Monandria.

M. ophioglossoides Nutt.: scape 1-leaved; leaf ovate, amplexicaule; lip truncate, emarginate.

HAB. Roots of trees. N. S. June. 2f.—Root bulbous. Scape a span high, 1-leaved, with a foliaceous sheath near the base, many-flowered. Flowers minute, greenish-white.

16. CALYPSO. *Salish.*

Segments of the perianth ascending, secund. Lip ventricose, spurred beneath near the end. Column petaloid, dilated. Pollinia 4. Gynandria. Monandria.

C. americana Brown: lip narrowed and subunguiculate at base; spur semibifid, longer than the lip, with acute teeth; peduncle longer than the ovary.—*C. borealis* Pursh.—*Limodorum boreale* Willd.

HAB. Near Montreal. N. to Nova Scotia. Near the outlet of Lake Michigan and W. to the Columbia river.—Scape 6—8 inches high, sheathed, 1-flowered. Radical leaf roundish-ovate, nerved. Flower large, purplish, somewhat resembling a species of *Cypripedium*.—I have received a specimen of this beautiful plant from Dr. Holmes, of Montreal, gathered near that place, and I have introduced the species in the hope that it may yet be found in the northern part of our state.

**** Lateral anthers fertile; the middle one sterile and petaloid.

17. CYPRIPIEDUM. *Linn.*

Lip ventricose, inflated, saccate, obtuse. Column terminating in a petaloid lobe. Two under segments of the perianth united, (or 4 segments with the under one bifid.)

Gynandria. Diandria.

1. *C. candidum* Willd.: stem leafy; leaves oblong-lanceolate; lobe of the style lanceolate, rather obtuse; lip compressed, shorter than the lanceolate segments of the perianth.

HAB. Penn. Muhl. May. 2f.—Resembles *C. calceolus*; but the flowers are white, and not half the size: the form of the leaves and the lobe of the style distinguish it sufficiently. Pursh. White Ladies Slipper.

2. *C. parviflorum* Willd.: stem leafy; lobe of the style triangular, acute; outer segments of the perianth ovate-oblong, acuminate; inner ones linear, contorted; lip compressed, shorter than the perianth.—*C. calceolus* Mich.

HAB. Woods. N. Y. to Car. May, June. 2f.—Stem 12 inches high, erect. Leaves clasping, oval, nerved. Perianth green, spotted with dark purple; lateral segments linear, twisted, hairy on the side. Lip yellow, spotted. Yellow Ladies Slipper.

3. *C. pubescens* Swartz: stem leafy; lobe of the style triangular-ob-

long, obtuse; outer segments of the perianth ovate-oblong, acuminate; inner ones very long, linear, contorted; lip compressed, shorter than the petals.—*C. calceolus* var. *Linn.*

HAB. Woods. Subarc. Amer. to Car. May. 24.—*Stem* 1—3 feet high. *Flowers* greenish-yellow, spotted. *Leaves* pubescent. —Resembles the preceding.

4. *C. spectabile* Swartz: stem leafy; lobe of the style elliptic-cordate, obtuse; outer segments of the perianth broad-oval, obtuse; lip cleft before, longer than the perianth.—*C. canadense* Mich.

HAB. Swamps and bogs. Can. to Car. May, June. 24.—*Stem* 2—3 feet high. *Leaves* ovate-lanceolate, plaited, exactly resembling those of *Veratrum viride*. *Flowers* 2—3, very large. *Lip* white, variegated with stripes of purple.

5. *C. acaule* Ait.: scape leafless, 1-flowered; radical leaves 2, oblong, obtuse; lobe of the style roundish-rhomboidal, acuminate deflexed; segments of the perianth lanceolate; lip shorter than the segments, cleft before.—*C. humile* Swartz.

HAB. Shady woods. Subarc. Amer. to Car. May, June. 24.—*Scape* a foot high. *Flower* very large; lip purple.

* **ARIETINUM.** *Lip* inflated, acute. Lower segments of the perianth not united, (or 5 segments distinct.)

A. americanum Beck: stem leafy; lobe of the style orbicular; the two lower segments linear-lanceolate, deflexed; two lateral linear, spreading; upper one oblong-ovate, acute; lip as long as the segments, inversely conical.—*Cypripedium arietinum* Ait.

HAB. Sphagnous swamps. Montreal, U. C. Fairhaven, Ver. Hallowell, Maine; rare. 24.—*Stem* 6—8 inches high, with few alternate lanceolate leaves. *Flowers* much smaller than in any of the preceding. *Flowers* greenish-brown. *Lip* small, acute, reticulated.—I know not, but in the recent divisions of the Orchideous genera, this plant may have been separated from *Cypripedium*; if it has not, it certainly should be, as it is so very different from all the species of that genus. This suggestion was first made by Dr. Bigelow in his *Florula Bostoniensis*, and I have ventured to propose the above name, which alludes to the resemblance of the shape of the flower to a ram's head.

ORDER CXVII. IRIDEÆ. Juss. Lind.

Perianth tubular, 6-parted, in two often unequal rows. *Stamens* 3, distinct or monadelphous, opposite the outer segments of the perianth; *anthers* 2-celled, bursting outwardly. *Ovary* 3-celled, cohering with the tube of the perianth; *ovules* numerous; *style* 1; *stigmas* 3, dilated, often petaloid, and sometimes 2-lipped. *Capsule* 3-celled, 3-valved, with a locu-

licidal dehiscence. *Seeds* numerous; *embryo* cylindrical; enclosed within a fleshy or horny albumen; *radicle* pointing to the hilum.

Herbs, rarely *undershrubs*. *Leaves* equitant, distichous. *Flowers* with spataceous bracts.

1. IRIS. Linn.

Perianth 6-cleft; 3 of the segments larger and reflexed, the others erect. *Stamens* distinct. *Style* short or none. *Stigmas* 3, petaloid, covering the stamens.

Triandria. Monogynia.

1. *I. versicolor* Linn.: stem terete, more or less flexuous; leaves ensiform; perianth beardless; germ somewhat triangular.

a. *sulcata* Torr.: stem slightly compressed; inner segments of the perianth longer than the stigmas; germ with the angles sulcate, the sides concave; capsule, oblong, ventricose; angles indistinctly furrowed.

b. *communis* Torr.: stem erect, distinctly flexuous; leaves narrow-ensiform; inner segments of the perianth a little shorter than the stigmas; angles of the germ not grooved when young; side deeply concave; capsule cylindrical-oblong.

HAB. Margins of ponds. Can. to Car. 2f.—*Root* large, fleshy, creeping. *Stem* 2—3 feet high. *Flowers* 2—6, blue, variegated with green and yellow. *Blue Flag*.

2. *I. prismatica* Pursh: stem round; leaves linear, long; perianth beardless; germs triangular, twice grooved on the sides.—*I. virginica* Torr. not of Linn.

HAB. Wet meadows. N. S. June. 2f.—*Root* fleshy, creeping. *Stem* 1—2 feet high, round, smooth. *Leaves* 1-2 an inch broad, very long and erect. *Flowers* 2—6 in a terminal raceme, purple and yellow. *Germs* with 2 parallel grooves on each side.—Very abundant in New-Jersey.

3. *I. lacustris* Nutt.; leaves ensiform, shorter than the 1-flowered scape; perianth without a bearded crest; segments nearly equal, attenuated on the tube; capsule turbinate, 3-sided, margined; root tuberous.

HAB. Gravelly shores of Lake Huron. Nutt. June. 2f.—*Root* creeping. *Scape* compressed, scarcely an inch long. *Leaves* 3—5 inches long and 1-4 of an inch broad. Torr..

2. SISYRINCHIUM. Linn.

Spathe 2-leaved. *Perianth* 6-cleft, flat, equal. *Stamens* cohering below. *Stigma* 3-cleft. *Triandria. Monogynia.*

1. *S. mucronatum* Mich.: scape simple, winged; spathe coloured; one of the valves ending in a long rigid point.

HAB. Wet meadows. N. Y. to Vir. July. 2f.—*Stem* 6—10 inches high, setaceous. *Flowers* 3 or 4 in each spathe, blue.

2. *S. anceps* Linn. : scape simple, winged ; spathe unequal, shorter than the flowers ; segments mucronate.—*S. gramineum* Lam.

HAB. Pastures, &c. Can. to Car. July. 2f.—Stem a foot high. *Spathe* of two lanceolate nearly equal valves, not coloured as in the preceding. *Flowers* 3 or 4 in each spathe, blue.

Blue-eyed Grass.

ORDER CXVIII. AMARYLLIDÆ. Brown. Lind.

Perianth petaloid, regular, 6-cleft ; the outer segments overlapping the inner. *Stamens* 6, inserted on the perianth ; *anthers* bursting inwardly. *Ovary* 3-celled, the cells many-seeded, sometimes 1—2 ; *style* 1 ; *stigma* 3-lobed. *Fruit* a 3-celled, 3-valved capsule, or a 1—3-seeded berry. *Seeds* with a thin and membranous, or thick and fleshy integument ; *albumen* fleshy ; *embryo* nearly straight ; *radicle* next the hilum.

Generally *bulbous*, sometimes *fibrous* rooted. *Leaves* ensiform ; with parallel veins.

1. AMARYLLIS. Linn.

Perianth 6-parted, petaloid, irregular. *Stamens* 6, arising from the orifice of the tube, declined or straight, unequal.

Hexandria. Monogynia.

A. atamasco Linn. : spathe bifid, acute ; flower pedicellate ; perianth subcampanulate, subequal, erect, short and tubular at the base ; *stamens* declined, equal.

HAB. Shady woods. Penn. Muhl. S. to Car. June. 2f.—*Scape* 6 inches high. *Leaves* a foot long, linear, concave, smooth. *Flower* solitary, large, white and pink.

Atamasco Lily.

ORDER CXIX. HYPOXIDÆ. Brown. Lind.

Perianth petaloid, usually 6-parted, regular ; æstivation imbricate. *Stamens* 6, inserted into the base of the segments. *Ovary* inferior, 3-celled, many-seeded ; *style* single ; *stigma* 3-lobed. *Capsule* indehiscent, sometimes succulent. *Seeds* numerous, with a black crustaceous integument and a rostelliform hilum ; *embryo* in the axis of fleshy albumen.

Herbs stemless or nearly so. *Leaves* plaited.

1. HYPOXIS. Linn.

Spathe 2-valved. *Perianth* superior, 6-parted, persistent.

Capsule elongated, narrowed at the base, 3-celled, many-seeded. *Seeds* roundish, naked. *Hexandria. Monogynia.*

H. erecta Linn. : hairy ; leaves all radical, linear and gramineous, sparingly hirsute, longer than the scape ; scape 2—4-flowered ; segments of the perianth lanceolate.—*H. erecta* and *H. graminea* Pursh.—*H. caroliniensis* Mich.

HAB. Meadows and woods. Can. to Car. June, July. 2f.—
Root bulbous. Scape 4—6 inches high, with the leaves narrow and often double the length. Flowers yellow. Star Grass.

ORDER CXX. DIOSCOREÆ. Brown. Lind.

Flowers dioecious. *Perianth* 6-cleft, equal. *Stamens* 6, inserted into the base of the segments of the perianth. *Ovary* 3-celled ; *ovules* 1—2 in each cell ; *style* deeply trifid ; *stigmas* undivided. *Fruit* a thin compressed capsule, with two of its cells sometimes abortive. *Seeds* flat, compressed ; *embryo* small, lying in a large cavity of a somewhat horny albumen, near the hilum.

Twining *shrubs*. *Leaves* usually alternate, mostly with reticulated veins.

1. DIOSCOREA. Linn.

Dioecious. *Perianth* 6-parted. STERILE FL. *Stamens* 6. FERTILE FL. *Styles* 3. *Capsule* 3-celled, triangular, compressed ; cells 2 seeded. *Seeds* membranaceously margined. *Dioecia. Hexandria.*

1. *D. villosa* Linn. : leaves alternate, opposite and verticillate, cordate, acuminate, pubescent beneath, 9-nerved ; lateral nerves simple.—*D. paniculata* Mich.

HAB. Woods. Can. to Car. May, June. 2f.—*Stem* climbing, sometimes 12 feet high. Lower leaves whorled, upper ones generally alternate. Flowers small, in axillary panicles.

Yam Root.

2. *D. quaternata* Walt. : leaves verticillate in fours, or alternate, cordate, acuminate, smooth on both sides, 7-nerved ; lateral nerves bifid.—*D. glauca* Muhl.

HAB. Old fields. Penn. to Car. July. 2f. *Stem* climbing. Leaves more tapering at the summit than in the former.

ORDER CXXI. SMILACEÆ. Brown. Lind.

Flowers monoclinal or dioecious. *Perianth* petaloid, 6-parted, (4-parted in *Styrandra*.) *Stamens* 6, (4 in *Styrandra*.)

dra) inserted into the base of the divisions of the perianth, rarely hypogynous. *Ovary* 3-celled; *ovules* 1 or several in each cell; *style* usually trifid; *stigmas* 3. *Fruit* a roundish berry. *Seeds* with a membranaceous (not black or brittle) integument; *albumen* fleshy cartilaginous; *embryo* usually remote from the hilum.

Herbs or *undershrubs* usually climbing. *Leaves* sometimes with reticulated veins.

1. SMILAX. Linn.

Dioecious. *Perianth* campanulate-spreading, 6-parted. STERILE FL. *Stamens* 6. FERTILE FL. *Ovary* 1. *Styles* 3. *Stigmas* 3. *Berry* globose, 3-celled.

Dioccia. Hexandria.

* *Stem frutescent.*

1. *S. quadrangularis* Willd. : prickly; stem 4-angled, unarmed above; leaves unarmed, ovate, subcordate, acute, 5-nerved.

HAB. Dry woods. Penn. to Car. June, July. 2l.—*Berries* black. *Pursh.*

2. *S. sarsaparilla* Linn. : stem prickly, slightly 4-angled; leaves unarmed, ovate-lanceolate, cuspidate, somewhat 5-nerved, glaucous beneath; common peduncle longer than the petioles.

HAB. Swamps. Penn. to Car. June, July. 2l.—*Stem* climbing, with scattered prickles. *Flowers* small. *Berries* black, 3-seeded.

3. *S. rotundifolia* Linn. : stem prickly, nearly round; leaves unarmed, roundish-ovate, acuminate, slightly cordate, 5-nerved; berries spherical.

HAB. Moist woods. Can. to Car. June. 2l.—*Stem* climbing upon trees and bushes, with strong tendrils. *Umbels* small, on short axillary peduncles. *Berries* black.

4. *S. caduca* Linn. : prickly; leaves ovate, mucronate, 5-nerved; common peduncles scarcely longer than the petioles.

HAB. Dry fields. Can. to Car. June. ½.—*Stem* flexuous, somewhat angled. *Pedicels* of the flowers as long as the common peduncle.

5. *S. laurifolia* Linn. : prickly; branches unarmed; leaves coriaceous, oval-lanceolate, slightly acuminate, 3-nerved; umbels on very short peduncles.

HAB. Boggy woods. N. J. to Geor. June—Aug. ½.—*Stem* climbing to a great height. *Leaves* somewhat crowded, coriaceous and perennial. *Peduncles* scarcely as long as the pedicels.

6. *S. pandurata* Pursh. : prickly; leaves ovate-panduriform, acuminate, 3-nerved; common peduncles twice as long as the petioles.—*S. tamnoides* Ell. not of Linn. ?

HAB. Sandy woods. N. J. to Car. July. $\frac{1}{2}$.—*Stem* twining, round. *Leaves* smooth and shining on both sides. *Berries* black.

7. *S. pseudo-china* Linn.: unarmed; leaves unarmed; cauline ones cordate; those of the branches ovate-oblong, 5-nerved; peduncles very long.

HAB. Sandy woods. N. J. to Car. May, June. $\frac{1}{2}$.—*Root* large, tuberous. *Stem* climbing. *Lower leaves* distinctly cordate.

** *Stem herbaceous, unarmed.*

8. *S. herbacea* Linn.: stem angled, erect, simple; leaves on long petioles, oval and cordate-ovate, acuminate, nerved, pubescent beneath; the lower ones alternate; the upper ones verticillate and crowded; peduncles very long, compressed.

HAB. Woods. N. Y. to Car. June, July. $2\frac{1}{2}$.—*Stem* 2—3 feet high, with 1—2 small branches. *Leaves*, when young, oval or ovate; when old, slightly cordate. *Berries* black.

9. *S. peduncularis* Muhl.: stem round, climbing; leaves roundish-ovate, cordate, acuminate, 9-nerved; umbels on very long peduncles.

HAB. Low woods. Can. to Penn. June. $2\frac{1}{2}$.—*Stem* climbing by stipular tendrils, 3—5 feet high. *Flowers* small, greenish, in simple umbels, fetid. *Peduncles* 4—6 inches long.

2. STYRANDRA. Raf.

Perianth 4-parted, spreading. *Stamens* 4, divergent. *Berry* 2-celled. *Tetrandria. Monogynia.*

Obs. After a most careful examination of the subject, I have determined to adopt the views of Mr. Rafinesque, in regard to the Linnæan genus *Convallaria*. The habit and flowers of these plants are so widely different, that it is almost impossible to present any collective characters. I am as much opposed as any one, to unnecessary division, but the very purpose of botanical arrangement is frustrated when a genus is allowed to have such an unnatural range.—See Raf. Med. Bot. ii. 84.

S. bifolia Raf.: stem 2-leaved; leaves on short petioles, cordate-oblong, very smooth on both sides; raceme simple, terminal; flowers tetrandrous.—*Convallaria bifolia* Linn.—*Smilacina canadensis* Pursh.—*Mayanthemum canadense* Desf.

HAB. Shady woods. Can. and N. S. May. $2\frac{1}{2}$.—*Stem* 4—6 inches high. *Flowers* white, small.—Agrees in habit with the next genus, but differs in being tetrandrous and in having a 2-celled berry.

3. SMILACINA. Desf.

Perianth 6-parted, spreading. *Stamens* 6, divergent, attached to the base of the segments. *Berry* globose, 3-celled. *Hexandria. Monogynia.*

1. *S. stellata* Desf. : leaves numerous, alternate, oval-lanceolate, clasping ; raceme simple, terminal, 3—8-flowered.—*Convallaria stellata* Linn.

HAB. River banks. Can. and N. S. May, June. 2f.—Stem a foot high. Flowers small, white, in an erect terminal raceme.

2. *S. trifolia* Desf. : stem smooth, angular, pubescent, about 3-leaved ; leaves alternate, oval-lanceolate, contracted at the base ; raceme simple terminal, few-flowered.—*Convallaria trifolia* Linn.

HAB. Alpine swamps. Can. and N. S. June, July. 2f.—Stem 6 inches high. Flowers small, white, 4—6 in a terminal raceme, with the segments spreading.

3. *S. racemosa* Desf. : stem a little flexuous ; leaves numerous, alternate, sessile, oblong-oval, acuminate, nerved, pubescent ; flowers in a terminal racemose panicle, very small.—*Convallaria racemosa* Linn.

HAB. Woods. Can. to Car. W. to Miss. June, July. 2f.—Root tuberous. Stem 1 1-2—2 feet high. Flowers very small, greenish-white, in a compound terminal panicle or raceme.

4. CLINTONIA. Raf.

Perianth 6-parted, campanulate. *Stamens* 6, inserted at the base. *Style* compressed. *Stigma* 2-lobed, compressed. *Berry* 2-celled ; cells many-seeded. *Hexandria. Monogynia.*

Obs. This genus was named by Mr. Rafinesque in honor of the late Gov. Clinton. It differs from *Dracena* in its 2-lobed stigma, and its 2-celled and many-seeded berry. From *Smilacina*, with which it was associated by Defontaines, it differs not only in the above characters, but strikingly also in habit and colour.

1. *C. borealis* Raf. : subcaulescent ; leaves elliptic-obovate, with the margins ciliate ; scape pubescent ; umbel terminal ; pedicels nodding, without bracts.—*Dracena borealis* Ait.—*Smilacina borealis* Pursh.

HAB. Wet woods. Can. and N. S. May, June. 2f.—Scape 6—8 inches high. Leaves radical or nearly so, 6 inches or more in length. Flowers large, campanulate. Berries oblong.

2. *C. multiflora* Raf. ? : leaves radical oblong-oval, with the margin and keel ciliate ; scape pubescent ; umbel terminal ; pedicels with minute bracts at base.—*Convallaria umbellulata* Mich. Torr.—*Smilacina umbellata* Pursh. Ell.—*Dracena borealis* Big.

HAB. Alpine bogs. Can. to Car. May, June. 2f.—Resembles the preceding, but considered distinct by Pursh and other authors. It is more common than the last. Mr. Rafinesque thinks that several distinct species are confounded under the name *C. umbellulata*, and I am in doubt whether this is the one which he designates by the above.

5. POLYGONATUM. Desf.

Perianth 6-cleft, cylindrical. *Stamens* 6, inserted on the upper part of the tube. *Berry* 3-celled ; cells 2-seeded.

Hexandria. Monogynia.

1. *P. multiflorum* Desf. : stem terete, smooth ; leaves alternate, clasping, oblong oval, smooth on both sides ; peduncles axillary, many-flowered.—*Convallaria multiflora* Linn.

HAB. Rocky woods. Can. to Car. June, July. 2f.—Stem 2—3 feet high. Flowers greenish-white, 2—4 on nodding axillary peduncles. *Solomon's Seal.*

2. *P. biflorum* Ell. : stem terete, smooth ; leaves alternate, sessile, elliptic-lanceolate, 3-nerved ; peduncles axillary, solitary, 2-flowered.—*Convallaria biflora* Walt.—*Smilacina angustifolia* Pursh.

HAB. Rocky situations. Penn. to Car. May, June. 2f.—Stem 12—18 inches high. Flowers yellow, tipped with green.—Perhaps only a variety of the preceding.

3. *P. pubescens* Pursh. : stem nearly terete, furrowed ; leaves alternate, clasping, ovate, pale and pubescent beneath ; peduncles axillary, filiform, mostly 2-flowered.—*Convallaria pubescens* Willd.

HAB. Rocks. N. Y. to Car. May, June. 2f.—Stem 18 inches high, curved. Flowers yellowish-white, much smaller than in the preceding.

4. *P. canaliculatum* Pursh. : stem channelled ; leaves alternate, clasping, oblong, pubescent on the margin ; peduncles axillary, 2-flowered.—*Convallaria canaliculata* Willd.

HAB. Shady woods. Near Boston. Big. Penn. to Virg. Pursh. June. 2f.—Distinguished from the preceding by its angular stem.

5. *P. latifolium* Desf. : stem angular ; leaves sessile, ovate, acuminate, smooth on both sides ; peduncles one or many-flowered, long and recurved.—*Convallaria latifolia* Linn.—*C. polygonatum* Muhl.

HAB. Wet banks. Penn. and Vir. June. 2f.—Stem 3—5 feet high.—The largest of the North American species.

6. STREPTOPUS. Mich.

Perianth 6-parted ; segments with a nectariferous pore at base. *Stamens* 6. *Anthers* longer than the filaments. *Stigma* very short. *Berry* subglobose, smooth, 3-celled. *Seeds* few. *Hexandria. Monogynia.*

1. *S. roseus* Mich. : smooth and shining ; stem dichotomous, terete ; leaves clasping, serrulate-ciliate ; anthers short, two horned.—*Uvularia rosea* Muhl.

HAB. Mountains. Can. to Car. May, June. 2f.—Stem 12—18 inches high. Flowers rose coloured, on filiform axillary pedicels.

2. *S. distortus* Mich. : smooth ; leaves clasping, smooth on the margin ; pedicels distorted and geniculate in the middle ; anthers sagittate, acuminate, much longer than the filaments.—*Uvularia amplexifolia* Linn.

HAB. Shady alpine woods. Can. and N. Y. May, June. 2f.—Stem 2 feet high. Flowers greenish-yellow, on filiform axillary pedicels which are longer than in the preceding.

3. *S. lanuginosus* Mich. : hoary-pubescent ; leaves sessile, subcordate at the base, acuminate ; pedicels in pairs.—*Utricularia lanuginosa* Muhl.

HAB. Mountains. Penn. to Car. May. 2f.—*Flowers* much larger than in the preceding species, greenish.

7. MEDEOLA. Linn.

Perianth 6-parted, revolute. *Stamens* 6. *Stigmas* 3, divaricate, united at base. *Berry* 3-celled ; cells 3—6 seeded.

Hexandria. Trigynia.

M. virginica Linn.—*Gyromia virginica* Nutt.

HAB. Moist woods. Can. to Geor. May, June. 2f.—*Stem* 12—18 inches high, erect. *Leaves* in 2 whorls ; one about the middle of the stem of 6—8 ovate lanceolate acuminate leaves ; the other near the top of 2—3 ovate ones. *Flowers* 3—6 on pedicels arising from the upper whorl, yellow, reflexed.

Cucumber Root.

8. TRILLIUM. Linn.

Perianth 6-parted ; 3 outer segments resembling a calyx, spreading ; 3 inner petaloid, (*petals.*) *Stamens* 6, inserted at the base of the segments, nearly equal. *Anthers* linear. *Style* usually none. *Stigmas* 3, distinct or approximate. *Berry* 3-celled ; cells many-seeded.

Hexandria. Trigynia.

* *Flowers sessile.*

1. *T. sessile* Linn. : leaves sessile, broad-ovate, acute ; flowers closely sessile, erect ; petals lanceolate, erect, twice as long as the calyx.

HAB. Fertile hills. Penn. to Car. Pursh. April, May. 2f.
—*Stem* 8 inches high, smooth. *Flowers* dark purple.

2. *T. recurvatum* Beck : leaves ovate or obovate, subpetiolate, nerved ; flower closely sessile ; petals lanceolate-ovate, very acute, attenuate at base, erect, as long as the recurved calyx.

HAB. Shady woods. Miss. May. 2f.—*Stem* 8—10 inches high, smooth. *Leaves* smooth, clouded with dark green. *Corol* purple. *Filaments* very short.—I have been led to introduce this and the next species, described some years since, (*Sill. Jour.* xi. 178,) from the fact that under the name *T. sessile*, several distinct species have heretofore been included.

3. *viride* Beck : leaves ovate, acute, closely sessile, 3—5-nerved ; flower erect, closely sessile ; petals fleshy, narrow, somewhat spatulate, a little longer than the lanceolate or ovate obtuse erect calyx.

HAB. Shady woods. Miss. April. 2f.—*Stem* 8—12 inches high. *Leaves* with whitish spots on the upper surface. *Petals* dark green. *Calyx* leaves variable.

** *Flowers pedunculate.*

4. *T. erythrocarpum* Mich. : peduncle somewhat erect ; petals oval-lanceolate, acute, recurved, nearly as long again as the narrow calyx ;

leaves ovate, acuminate, rounded at the base, abruptly contracted into a short petiole.—*T. pictum* Pursh.—*T. undulatum* Willd.

HAB. Shady woods. Can. to Car. May, June. 2f.—Stem 6—8 inches high. Flowers white, with purple veins near the base, on peduncles about an inch long.

5. *T. pusillum* Mich. : peduncle erect ; petals scarcely longer than the calyx ; leaves oval oblong, obtuse, sessile.—*T. pumilum* Pursh.

HAB. Penn. Muhl. S. to Car. May. 2f.—Plant small. Flowers flesh coloured.

6. *T. cernuum* Linn. : peduncle recurved ; petals lanceolate, acuminate, flat, recurved, as long as the calyx ; leaves dilated-rhomboid, abruptly-acuminate, on short petioles.

HAB. Shady woods. N. Y. to Car. May. 2f.—Stem 12—18 inches high. Flowers small, white. Berries large, dark purple.

7. *T. erectum* Linn. : peduncle inclined ; flower a little nodding ; petals ovate, acuminate, flat, spreading, broader but scarcely longer than the calyx ; leaves broad-rhomboid, acuminate, sessile.—*T. rhomboideum* var. *atropurpureum* Mich.—*T. atropurpureum* Curt.

b. album Pursh : flowers smaller ; petals white.—*T. rhomboideum* var. *album* Mich.

HAB. Shady rocks. N. Y. to Car. W. to Miss. May. 2f.—Stem 12—15 inches high. Flowers dark purple or white.—Var.

b. is found near this city.

8. *T. pendulum* Willd. : peduncle inclined ; flower pendulous ; petals ovate, acuminate, spreading, about as large as the ovate acuminate calyx ; leaves round, rhomboidal, acuminate, somewhat sessile.

HAB. Mountains. Penn. to Car. May. 2f.—Stem a foot high. Flower white, with pink veins.

9. *T. grandiflorum* Salisb. : peduncle a little inclined ; flower nearly erect ; petals spatulate-lanceolate, connivent at the base, much longer than the calyx ; leaves broadly rhomboid-ovate, sessile, abruptly acuminate.—*T. rhomboideum* var. *grandiflorum* Mich.

HAB. Rocky banks of streams. N. Y. to Car. W. to Miss. May. 2f.—Stem 8—12 inches high. Flower much larger than in any of the preceding, varying from white to rose colour.

9. UVULARIA. Linn.

Perianth inferior, 6-parted, erect ; segments with a nectariferous cavity at base. *Stamens* 6 ; filaments very short, growing to the anthers. *Stigmas* 3, reflexed. *Capsule* 3-angled, 3-celled, 3-valved, *Seeds* many, subglobose, arillate at the hilum. *Hexandria. Monogynia.*

1. *U. perfoliata* Linn. : leaves perfoliate, elliptic, obtuse ; perianth campanulate, granular within ; anthers awned.—*U. perfoliata* var. *minor* Mich.

HAB. Shady hills. Can. to Car. W. to Miss. May, June.

2f.—*Stem* 8—12 inches high. *Flowers* pale yellow, few, solitary, axillary, nodding. *Bellicort.*

2. *U. flava* Smith : leaves perfoliate, elliptic-oblong, obtuse, undulate at base ; perianth tapering at base, scabrous within ; anthers awned.

HAB. Sandy soils. N. J. to Car. May, June. 2f.—*Flowers* larger and of a deeper yellow than in the preceding.—Pursh. Perhaps only a variety.

3. *U. grandiflora* Smith : leaves perfoliate, oblong, acute ; perianth smooth within ; anthers without awns ; nectaries nearly round ; pistil shorter than the stamens.—*U. perfoliata* var. *major* Mich.—*U. lanceolata* Willd.

HAB. Rocky hills. Can. to Car. W. to Miss. May, June. 2f.—Whole plant much larger than either of the preceding.

4. *U. sessilifolia* Linn. : stem smooth ; leaves sessile, oval-lanceolate, glaucous beneath ; segments of the perianth flat, smooth within ; capsules ovate, peduncled.

HAB. Shady woods. Can. to Car. May. 2f.—*Stem* 8—10 inches high, forked near the summit. *Flowers* 1—2 on a slender axillary peduncle, pale yellow.

ORDER CXXII. ASPHODELEÆ. Brown. Lind.

Perianth petaloid, 6-parted, regular. *Stamens* 6, inserted upon the perianth, or hypogynous ; 3 sometimes unlike the others or wanting. *Ovary* superior, 3-celled ; *ovules* 2 or many in each cell ; *style* 1 ; *stigma* entire or shortly 3-lobed. *Fruit* capsular or fleshy. *Seeds* with a black brittle and crustaceous integument ; *albumen* fleshy ; *embryo* included.

Herbs or *trees* with bulbous or fasciculated roots. *Leaves* with parallel veins.

1. ORNITHOGALUM. Linn.

Perianth 6-parted, spreading above. *Stamens* 6, dilated at base, hypogynous. *Hexandria. Monogynia.*

O. umbellatum Linn. : corymb few-flowered ; peduncles longer than the bracts ; filaments subulate.

HAB. Wet meadows. N. S. May, June. 2f.—*Root* bulbous. *Leaves* radical, linear. *Flowers* white. Introduced.

Star of Bethlehem.

2. HEMEROCALLIS. Linn.

Perianth large, persistent, campanulate, 6-cleft ; tube cylindrical. *Stamens* 6, declined. *Stigma* somewhat villous.

Hexandria. Monogynia.

H. fulva Linn. : leaves linear, carinate ; 3 segments of the perianth obtuse and undulate ; outer nerves of the segments branching.

HAB. Wet meadows. Penn. July. 2f.—*Scape* 3—4 feet high. *Leaves* very long. *Flowers* large, fulvous. Introduced.

Day Lily.

3. ALLIUM. Linn.

Flowers umbellate, terminal, arising from a 2-leaved spathe. *Perianth* 6-parted, generally spreading.

Hexandria. Monogynia.

1. *A. vineale* Linn. : stem slender, a little leafy ; cauline leaves rounded, fistulous ; umbel bulbiferous ; stamens alternately tricuspidate.

HAB. Meadows. N. S. June, July. 2f.—*Stem* 2 feet high. *Flowers* rose coloured. Introduced.

2. *A. triflorum* Raf. : scape naked, terete, shorter than the leaves ; leaves lanceolate, nerved ; umbel few-flowered.

HAB. Mountains. Penn. Pursh. May, June. 2f.

Mountain Leeks.

3. *A. cernuum* Roth : scape naked, square, umbeliferous ; leaves linear, nearly flat ; umbel cernuous ; stamens simple ; germ 6-toothed.

HAB. Banks of the Seneca Lake, N. Y. Gray. Penn. July. 2f.—*Scape* 1—2 feet high. *Flowers* rose coloured.

4. *A. canadense* Linn. : scape naked, terete ; leaves linear, flat, smooth ; head bearing bulbs and flowers ; stamens simple, as long as the perianth.

HAB. Wet meadows. Can. to Car. May, June. 2f.—*Scape* 18 inches high. *Leaves* very long and narrow. *Flowers* rose coloured.

5. *A. tricoccum* Ait. : scape naked, nearly terete ; leaves lanceolate-oblong, flat, smooth ; umbel globose ; seed solitary.

HAB. Mountain woods. Mass. to Vir. June, July. 2f.—*Scape* a foot high. *Flowers* white, in a spreading umbel.

4. ASPARAGUS. Linn.

Perianth 6-parted. *Stamens* 6. *Style* very short. *Stigmas* 3. *Berry* 3-celled ; cells 2-seeded.

Hexandria. Monogynia.

A. officinalis Linn. : unarmed ; stem herbaceous, erect, rounded, much branched ; leaves setaceous, fasciculate and flexible ; peduncles jointed in the middle.

HAB. Rocky shores. N. Y. June. 2f.—*Stem* 1—2 feet high. *Flowers* small, greenish-white, subaxillary, solitary, drooping. *Berries* scarlet. Introduced.

5. ALETRIS. *Linn.*

Perianth tubular-ovate, 6-cleft, rugose. *Stamens* 6, inserted upon the margin of the orifice. *Style* triquetrous, 3-parted. *Capsule* 3-celled, many-seeded, opening at the summit.
Hexandria. Monogynia.

1. *A. farinosa* *Linn.*: leaves radical, broad-lanceolate, smooth; flowers pedicellate, oblong-tubular; the perianth when decaying nearly smooth.—*A. alba* *Mich.*

HAB. Sandy woods. N. Eng. to Car. July. 24.—*Scape* 2 feet high. *Flowers* white, in a longitudinal spike. The root is intensely bitter. *Star Grass. Colic Root.*

2. *A. aurea* *Walt.*: leaves radical, lanceolate, acuminate; flowers subsessile, short, subcampanulate; perianth when decaying rugose and very scabrous.

HAB. Pine barrens. N. J. to Car. July, Aug. 24.—*Scape* 2—3 feet high. *Flowers* yellow, in a spike, not so numerous as in the preceding.

ORDER CXXIII. LILIACEÆ. *Juss. Lind.*

Perianth coloured, regular, 6-divided. *Stamens* 6, perigynous, opposite the segments of the perianth. *Ovary* superior, 3-celled; *style* 1; *stigma* simple, or 3-lobed. *Capsule* 3-celled, 3-valved, with a loculicidal dehiscence. *Seeds* numerous, usually flat, packed one above the other in 1 or 2 rows, with a spongy dilated integument; *embryo* straight, in the axis of fleshy albumen; *radicle* next the hilum.

Plants with scaly *bulbs* or arborescent *stems*. *Leaves* with parallel veins.

1. LILIUM. *Linn.*

Perianth campanulate, deeply 6-parted; segments straight or reflexed, with a longitudinal nectariferous line. *Stamens* 6. *Stigma* entire.
Hexandria. Monogynia.

1. *L. catesbæi* *Walt.*: leaves scattered, linear-lanceolate, very acute; stem 1-flowered; perianth erect; segments with long claws, undulate on the margin, reflexed at the summit.

HAB. Sandy meadows. Penn. to Car. W. to Miss. June—Aug. 24.—*Stem* 18 inches high. *Flowers* large, scarlet, spotted with yellow and brown.

2. *L. philadelphicum* *Linn.*: leaves whorled, linear-lanceolate; stem 1—2-flowered; perianth erect, campanulate, spreading; segments with claws.

HAB. Woods and meadows. Can. to Car. July, Aug. 2f.—
Stem 18 inches high. Flowers large, dark orange, spotted at
base.

3. *L. canadense* Linn.: leaves remotely whorled, lanceolate, 3-nerved; nerves hairy beneath; peduncles terminal, long, generally by threes; flowers nodding; perianth turbinate, campanulate, slightly revolute; segments lanceolate.

HAB. Wet meadows. Can. to Car. W. to Miss. July, Aug.
2f.—Stem 2—3 feet high. Flowers yellow, spotted on the inside.
Common Yellow Lily.

4. *L. superbum* Linn.: leaves whorled, linear-lanceolate, 3-nerved, smooth, the upper ones scattered; flowers in a pyramidal raceme, reflexed; segments revolute.

HAB. Wet meadows. Can. to Car. July. 2f.—Stem 4—6 feet high. Flowers 3—20 or more in a large pyramidal raceme, orange, with dark spots.—Is not this a mere luxuriant variety of the last?
Superb Lily.

2. ERYTHRONIUM. Linn.

Perianth campanulate, 6-parted; segments reflexed; the 3 inner ones with a callous tooth on each side near the base, and a nectariferous pore. *Stamens* 6. *Capsule* substipitate. *Seeds* ovate.
Hexandria. Monogynia.

1. *E. americanum* Smith: leaves lanceolate, punctate; segments of the perianth oblong-lanceolate, obtuse at the point; inner ones bidentate near the base; style clavate; stigma entire.—*E. lanceolatum* Pursh.—*E. dens canis* Mich.

HAB. Wet meadows. Can. to Geor. April, May. 2f.—Scape 6—8 inches high. Leaves 2, radical. Flower solitary, terminal, yellow.
Dogtoothed Violet.

2. *E. albidum* Nutt.: leaves elliptical-lanceolate, not punctate; segments of the perianth linear-lanceolate, obtuse; inner ones without dentures, subunguiculate; style filiform; stigma 3-cleft; lobes reflexed.

HAB. Wet meadows. Can. and N. Y. W. to Miss. April, May. 2f.—Scape 6 inches high. Flower white, segments thick and somewhat obtuse.—Very abundant near Albany, N. Y., and also found in Canada by D. Thomas, Esq. I have observed a plant at New-Brunswick, N. J. which agrees with this in the absence of dentures and in the trifid stigma, but the perianth is yellow. It is probably the same which is alluded to by Mr. Nuttall, (*Gen. Pl.* i. 223,) and may prove distinct.

White Erythronium.

3. *E. bracteatum* Big.: leaves lanceolate, unequal; scape bracted.

HAB. High mountains. Ver. June. 2f.—Leaves very unequal, one being two or three times as large as the other. Scape shorter than the leaves, with a narrow lanceolate bract 1—2 inches below the flower, which is yellow, half as large as in No. 1; the segments gibbous at base.

ORDER CXXIV. MELANTHACEÆ. *Brown. Lind.*

Perianth petaloid, 6-divided, the margin of the segments, generally involute in æstivation. *Stamens* 6; *anthers* usually bursting outwards. *Ovary* 3-celled, many-seeded; *style* trifid or 3-parted; *stigmas* three, undivided. *Capsule* generally divisible into three pieces, sometimes with a loculicidal dehiscence. *Seeds* with a membranous integument; *albumen* dense, fleshy.

Leaves sheathing at base, with parallel veins.

1. MELANTHIUM. *Linn.*

Polygamous. *Perianth* rotate, 6-parted; segments unguiculate, biglandular at the base, claws staminiferous. *Capsule* exserted, subovate; apex partly trifid, 3-celled. *Seeds* many, membranously winged. *Hexandria. Trigynia.*

1. *M. virginicum* Linn.: leaves long, linear-lanceolate, flat, smooth; panicle very large, pyramidal; petals ovate, somewhat hastate, flat; flowers mostly perfect.

HAB. Wet meadows. N. Y. to Car. July. 2f.—Stem 3–4 feet high, leafy. Flowers greenish-white, in a panicle a foot or more in length.—This species has been found by Dr. Horton, in Orange county, N. Y.

2. *M. glaucum* Nutt.: root a tunicated bulb; leaves glaucous, gramineous, margined; raceme mostly simple, few-flowered; flowers perfect; segments of the perianth roundish, clawed, with 2 spots; seeds subulately winged.

HAB. Shores of Lake Erie. W. to Miss. Nutt. July, Aug. 2f.—Stem a foot high. Flowers whitish, in a raceme, which is sometimes a little divided at base.

3. *M. hybridum* Walt.: leaves long-linear, nearly smooth, embracing the stem; panicle long, composed of simple racemes; segments of the perianth orbicular, plaited, with long claws; glands united.—*M. racemosum* Mich.

HAB. Penn. Muhl. S. to Car. June, July. 2f.—Stem 2 feet high, leafy. Flowers in a long panicle, which is composed of simple racemes.

2. TOFIELDIA. *Huds.*

Perianth 6-parted, with a small 3-parted involucre. *Stamens* 6, smooth. *Capsule* 3–6-celled; cells many-seeded, united at base. *Hexandria. Monogynia.*

T. pubescens Pursh: leaves subradical, narrow-ensiform, smooth; rachis and pedicels scabrous; spike oblong, interrupted; capsule sub-

globose, scarcely longer than the involucre.—*Narthecium pubens* Mich.
Melanthium racemosum Walt.

HAB. Swamps. Del. to Car. July. 2f.—*Scape* 18 inches high.
Leaves a foot long. *Flowers* greenish-white, in a racemed spike.

3. XEROPHYLLUM. Mich.

Perianth subrotate, deeply 6-parted. *Stamens* 6, contiguous at base. *Stigmas* 3, revolute, partly united below. *Capsule* subglobose, 3-celled; cells 2-seeded, opening at the summit. *Hexandria. Trigynia.*

X. setifolium Mich: leaves subulate-setaceous; flowers in a crowded oblong raceme; filaments dilated at the base, as long as the perianth.—*Helonias asphodeloides* Linn.

HAB. Sandy plains. N. J. to Car. June. 2f.—*Scape* 3—5 feet high. Radical *leaves* forming large tufts a foot long and very narrow. *Flowers* white, in a large terminal raceme.

4. HELONIAS. Linn.

Perianth 6-parted, spreading; segments sessile and without glands. *Stamens* 6. *Styles* 3, distinct. *Capsule* 3-celled, 3-horned; cells few-seeded. *Hexandria. Trigynia.*

1. *H. latifolia* Mich.: scape leafless; spike ovate, crowded; bracts linear-lanceolate; leaves lanceolate, mucronate, nerved.—*H. bullata* Linn.

HAB. Sandy swamps. N. J. to Vir. Pursh. May. 2f.—*Flowers* pale purple. *Anthers* blue.

2. *H. erythrosperma* Mich.: scape simple, leafy; leaves linear, very long, nerved; raceme oblong; bracts short; capsule shortened, with divaricate horns; seeds ovate, red.—*Melanthium latum* Ait.—*M. muscatoxicum* Walt.

HAB. Shady woods. Penn. to Car. June, July. 2f.—*Stem* 2 feet high. *Leaves* very long and linear. *Flowers* white, in a simple terminal raceme.

3. *H. angustifolia* Mich.: scape leafy; leaves very long and narrow, linear, subulate; raceme oblong, lax; capsule oblong, with the summit appressed; seeds linear.

HAB. N. Y. Muhl. S. to Car. June. 2f.—*Stem* 2 feet high, smooth. *Leaves* narrower than in the preceding. *Flowers* in a simple terminal raceme.

4. *H. dioica* Pursh: scape leafy; leaves lanceolate; racemes dioecious, spiked, cernuous; pedicels very short, without bracts; segments of the perianth linear; stamens exerted.—*H. lutea* Ait.—*Veratrum luteum* Linn.—*Melanthium dioicum* Walt.

HAB. Damp grounds. N. J. to Geor. W. to Miss. June. 2f.—*Stem* 1—2 feet high. *Leaves* becoming broader near the root.

Flowers white, dioecious and polygamous, in a terminal spiked raceme.—It is doubtful whether it belongs to this genus.

Unicorn Plant.

5. VERATRUM. Linn.

Perianth 6-parted, spreading ; segments sessile and without glands. *Stamens* 6, inserted upon the receptacle. *Ovaries* united at base, sometimes abortive. *Styles* 3, short. *Capsule* oblong, 2-valved, many-seeded. *Seed* with a membranaceous margin.

Hexandria. Trigynia.

V. viride Ait. : racemes paniculate ; bracts of the branches oblong-lanceolate ; partial ones longer than the subpubescent peduncles ; leaves broad-ovate, plaited lengthwise.—*V. album* Mich.

HAB. Meadows and swamps. Can. to Car. June, July. 2f.—

Stem 3—5 feet high. *Leaves* large, sheathing the stem at base.

Flowers greenish, in a large terminal panicle. Medicinal and poisonous.

Poke Root. American Hellebore.

ORDER CXXV. PONTEDEREÆ. Kunth. Lind.

Perianth tubular, coloured, 6-parted, more or less irregular ; æstivation circinate. *Stamens* 3 or 6, unequal, perigynous. *Ovary* free, or sometimes coherent at base, 3- (or rarely 1-) celled, 3-valved, with loculicidal dehiscence. *Seeds* indefinite, attached to a central axis ; *hilum* small ; *embryo* straight, in the axis of somewhat mealy *albumen*.

Aquatic or *marsh* plants. *Leaves* sheathing at the base, with parallel veins.

1. PONTEDERIA. Linn.

Perianth inferior, 6-parted, bilabiate ; under side of the tube perforated with 3 longitudinal foramina, the lower part persistent, calicine. *Stamens* 6, unequally inserted, 3 of them upon the summit. *Utricle* muricate, 1-seeded.

Hexandria. Monogynia.

1. *P. cordata* Linn. : leaves subradical, oblong-cordate ; flowers in crowded spikes ; segments of the perianth oblong.

HAB. Ponds. Can. to Car. Aug. 2f.—*Scape* 1—2 feet long.

Flowers aggregated by twos and threes, sessile, bright blue.

Pickernel Weed.

2. *P. angustifolia* Pursh : leaves elongated-triangular, truncate and subcordate at the base ; segments of the perianth linear-lanceolate.—*P. cordata* var. *angustifolia* Torr.—*P. mucronata* Raf.

HAB. High mountain lakes. N. Y. to Car. Pursh. July. 2f.—

Flowers blue, smaller than in the preceding species, of which it may be only a variety.—I have fine specimens collected by Dr. S. B. Mead in Westchester co. N. Y.

2. HETERANTHERA. R. & P.

Flowers in a spathe. *Perianth* with a long and slender tube; border 6-parted, equal. *Stamens* 3. *Anthers* of 2 forms. *Capsule* 3-celled, many-seeded, opening at the angles; *dissepiment* contrary. *Triandria. Monogynia.*

H. reniformis R. & P.: leaves orbicular-reniform; spathe oblong, acuminate, 3—5-flowered.—*H. acuta* Pursh.—*Leptanthus reniformis* Mich.

HAB. Overflowed banks. N. Y. to Vir. July, Aug. 2f.—
Stem partly floating. Leaves petioled. Flowers white.

3. SCHOLLERA. Schreb.

Spathe 1-flowered. *Perianth* with a very long tube; limb deeply 6-parted. *Anthers* of 2 forms. *Capsule* 1-celled. *Triandria. Monogynia.*

S. graminea Vahl.—*Leptanthus gramineus* Mich.—*Heteranthera graminea* Pursh.

HAB. In flowing streams. N. S. July, Aug. 2f.—Stem slender, dichotomous. Leaves sessile, narrow-linear. Flowers small, yellow, solitary. *Stamens* 4, 1 abortive.

ORDER CXXVI. RESTIACEÆ. Brown. Lind.

Perianth 2—6-parted, sometimes wanting. *Stamens* definite, 1—6; when half as many as the segments of the perianth, they are opposite the inner divisions; *anthers* mostly 1-celled. *Ovary* 1 or more celled. *Fruit* capsular or nucamentous. *Seeds* pendulous; *embryo* lenticular, on the outside of a mealy albumen, at the extremity remote from the hilum.

Herbs or *undershrubs*. Leaves simple, narrow, or none.

1. ERIOCAULON. Linn.

Flowers monoecious, collected into a compact scaly head. STERILE FL. in the disk. *Perianth* 4-cleft; the 2 inner segments united nearly to their summit. *Stamens* 4—6. FERTILE FL. in the margin. *Perianth* deeply 4-parted. *Style* 1. *Stigmas* 2—3. *Capsule* 2—3-lobed, 2—3-celled; cells 1-seeded. *Monoecia. Tetrandria.*

1. *E. pellucidum* Mich.: scape very slender, about 7-furrowed; leaves

linear-subulate, channelled, smooth, pellucid, 5-nerved, transversely striate; head small, globose; scales of the involucre oval, obtuse.

HAB. In ponds. Can. and N. S. Aug. 2 $\frac{1}{2}$.—Scape 4—8 inches high, very slender. Flowers white. *Pipeacort.*

2. *E. decangulare Mich.*: scape 10-furrowed; leaves ensiform, smooth; head large, depressed-globose; scales of the involucre oval, acute, of the receptacle mucroate.

HAB. Ponds. N. J. to Car. Aug. 2 $\frac{1}{2}$.—Scape 2—3 feet high. Flowers very white.

ORDER CXXVII. XYRIDEÆ. Kunth. Lind.

Perianth 6-parted, in 2 rows; outer glumaceous; inner petaloid, unguiculate. *Stamens* 6, 3 fertile inserted upon the apex of the claw of the segments of the inner row of the perianth; *anthers* bursting outwardly. *Ovary* single; *style* trifid; *stigmas* obtuse, multifid or undivided. *Capsule* 1-celled, 3-valved, many-seeded, with parietal placentæ. *Seeds* numerous; *embryo* on the outside of the albumen at the extremity remote from the hilum.

Herbs with fibrous roots. *Leaves* radical, with dilated scarious bases.

1. XYRIS. Linn.

Flowers in an ovate cylindric head. *Perianth* 6-parted, in 2 rows; outer glumaceous, 3-valved cartilaginous; inner equal. *Stigma* 3-cleft. *Triandria. Monogynia.*

1. *X. caroliniana Walt.*: leaves linear, grass like; scape 2-edged; head ovate, rather acute; scales round.—*H. jupacai Mich*—*H. flexuosa Ell.*

HAB. Wet meadows. N. Y. to Flor. July. 2 $\frac{1}{2}$.—Stem a foot high, a little twisted. Leaves sometimes spiral. Flowers yellow, in a small head.—Very variable. *Yellow-eyed Grass.*

2. *X. brevifolia Mich.*: leaves subulate, ensiform, short; head nearly globose; inner valve of the glume shorter than the outer one, slightly notched.

HAB. Wet meadows. Penn. to Geor. July. 2 $\frac{1}{2}$.—Scape 12—18 inches high, compressed near the summit. Leaves much twisted. Flowers yellow.

ORDER CXXVIII. JUNCÆ. Juss. Lind.

Flowers monoclinal or diclinal. *Perianth* 6-parted, more or less glumaceous. *Stamens* 6, inserted into the base of the segments; sometimes only 3 and opposite the outer

series; *anthers* 2-celled. *Ovary* 1—3 celled, 1- or many-seeded, or 1-celled and 3-seeded; *style* 1; *stigmas* mostly 3, sometimes only 1. *Fruit* capsular, 3-valved, loculicide, sometimes indehiscent. *Seeds* with an integument neither black nor crustaceous; *albumen* firm, fleshy or cartilaginous; *embryo* within it.

Herbs with fascicled or fibrous roots. *Leaves* fistular, or flat and channelled, with parallel veins.

1. JUNCUS. Linn.

Perianth 6-parted, glumaceous. *Stamens* 6. *Capsule* 3-celled, 3-valved; valves bearing the partitions down the middle, to which the numerous seeds are fixed.

Hexandria, Monogynia.

* *Leaves none.*

1. *J. acutus* Linn.: scape naked, terete; involucre 2-leaved, erect, spinous; capsule nearly round, mucronate, as long again as the perianth.

HAB. Sandy sea coast. N. J. to Car. July. 2f.—Scape 2 or 3 feet high. Panicles 2—3 inches long, appearing as if lateral, though really terminal.

2. *J. effusus* Linn.: scape not rigid, finely striated; panicle loose, very much branched, spreading; capsule obovate, obtuse, shorter than the lanceolate acute leaves of the perianth.

HAB. Wet grounds. Can. to Car. June, July. 2f.—Scape 2—3 feet high, erect. *Stamens* 3.

3. *J. setaceus* Rostk.: scape filiform, striate; umbel lateral, compound, few-flowered; peduncles many-flowered; leaflets of the perianth subulate.—*J. filiformis* Mich.

HAB. Swamps. Can. to Car. July. 2f.—Scape 2—3 feet high, very slender. Panicle small, some distance below the summit of the scape.

** *Leaves all radical. (Flowers terminal.)*

4. *J. squarrosus* Linn.: leaves setaceous, rigid, grooved; panicle terminal, elongated, compound; capsule elliptical-ovate.

HAB. N. Y. Muhl. 2f.—Whole plant very rigid, 6—12 inches high.

5. *J. nodosus* Linn.: stem somewhat leafy; leaves nodose-articulate; heads mostly 2, globose, one of them lateral and pedunculate, the other sessile; leaflets of the perianth mucronate, shorter than the 3-sided acuminate capsule.

HAB. Swamps. Can. to Car. July, Aug. 2f.—Stem 8—12 inches high, filiform. Leaves few and very slender.

6. *J. tenuis* Willd. : stem leafy, simple, nearly terete ; leaves setaceous, channelled ; flowers approximate, subsessile ; perianth longer than the obtuse capsule.—*J. bicornis* Mich.

HAB. Low grounds. Penn. to Car. June, July. 2f.—Stem 10 inches high, often naked. Panicle terminal, often proliferous. with a long leafy involucre.

*** Stems leafy.

† Leaves nearly plane, channelled above.

7. *J. bulbosus* Linn. : stem simple, leafy, compressed ; leaves mostly radical, linear-setaceous, grooved ; panicle terminal, compound, subcymose, shorter than the involucre ; leaflets of the perianth incurved, obtuse or acute, mostly shorter than the roundish ovate capsule.—*J. dichotomus* Ell.

HAB. Salt marshes. N. Y. to Car. Aug. 2f.—Stem 8—12 inches high. Panicle small, terminal, dichotomous.

8. *J. bufonius* Linn. : stem with a dichotomous panicle ; leaves filiform-setaceous, grooved ; flowers subsolitary, sessile, unilateral ; leaflets of the perianth very acuminate, much longer than elliptical-ovate capsule.

HAB. Moist places. Can. to Car. Aug. ②.—Stem 3—6 inches high, divided towards the top. Panicle loose, few-flowered.

9. *J. marginatus* Rostk. : stem compressed ; leaves flat, smooth ; corymb terminal, simple, proliferous ; heads 5—10-flowered ; flowers triandrous ; leaflets of the perianth about as long as the obtuse capsule ; the outer ones and the bracts subaristate.—*J. aristulatus* Mich.—*J. triglumis* Walt.

b. odoratus Torr. : stem tall, subterete, leafy ; panicle much branched, proliferous.

HAB. Low grounds. N. Y. to Car. Aug. 2f.—Stem 1—3 feet high.—Var. *b.* has an odorous smell—found in moist woods near New-York.

10. *J. trifidus* Linn. : leaf mostly solitary near the summit, linear-setaceous ; sheaths ciliate ; bracts foliaceous, very long, grooved ; heads about 3-flowered, terminal.

HAB. White Hills, N. H. Big. July. 2f.—Stem 6 inches high. Flowers in a single head supported by long bracts or terminal leaves.

11. *J. militaris* Big. : leaf one, jointed, longer than the stem ; panicle terminal, proliferous, with sheathing lanceolate bracts at base ; heads about 5-flowered.

HAB. Ponds near Boston. Big.—Stem 2—3 feet high, with a long sheath or two at base and commonly another above the leaf. Panicle terminal, erect, with proliferous branches.

†† Leaves rounded or subcompressed, nodose-articulate.

12. *J. acuminatus* Mich. : stem leafy, erect ; leaves terete, with knot-

like joints ; panicle terminal, compound ; heads 3—6-flowered, pedunculate and sessile ; leaflets of the perianth linear-lanceolate, mucronate, shorter than the acute capsule.—*J. sylvaticus* Muhl.

HAB. Bogs. N. Eng. to Car. July. 2f.—Stem 12—18 inches high. Leaves few, shorter than the stem.

13. *J. polyccephalus* Mich. : stem leafy, erect ; leaves compressed, with knot-like joints ; panicle decompound ; heads globose, many-flowered ; flowers triandrous ; leaflets of the perianth somewhat awned, rather shorter than the triquetrous acute capsule.—*J. echinatus* Muhl.

HAB. Boggy meadows. Penn. to Geor. July, Aug. 2f.—Stem 2—3 feet high, compressed near the base. Panicle compound.

14. *J. subverticillatus* Willd. : stem leaves subulate, with knot-like joints ; panicle corymbose ; heads about 5-flowered, fasciculate-verticillate ; leaflets of the perianth striate, as long as the obtuse capsule.—*J. fluitans* Mich.—*J. verticillatus* Pursh.

HAB. Ponds, &c. Can. and N. S. Pursh. July, Aug. 2f.—Stem 18 inches high, compressed. Panicle subverticillate.

2. LUZULA. De Cand.

Perianth 6-parted, glumaceous. Stamens 6. Capsule 3-celled, 3-valved ; valves without partitions ; 1 seed in each cell, fixed to the bottom.—Leaves plane, generally hairy.

Hexandria. Monogynia.

1. *L. pilosa* Willd. : leaves hairy ; panicle subcymose ; peduncles 1-flowered, reflexed ; leaflets of the perianth acuminate, shorter than the obtuse capsule.—*Juncus pilosus* Linn.

HAB. Woods. N. S. April, May. 2f.—Stem 6—12 inches high. Radical leaves numerous, very hairy. Panicle 8—10-flowered.

2. *L. campestris* De Cand. : leaves hairy ; spikes sessile and peduncled ; leaflets of the perianth acuminate, awned, longer than the obtuse capsule.—*Juncus campestris* Linn.

HAB. Meadows. Can. to Car. April, May. 2f.—Stem 6—12 inches high, cespitose at base. Panicle terminal, somewhat umbelled.

3. *L. melanocarpa* Desv. : culm leafy ; leaves sublanceolate, smooth ; panicles capillary, loose ; flowers distinctly pedicellate ; capsule black. *Juncus melanocarpus* Mich.

HAB. White Hills, N. H. July. Big. Can. Mich.

4. *L. spicata* De Cand. : leaves narrow, hairy at the throat ; spike cernuous, compound ; leaflets of the perianth acuminate, awned, about the length of the roundish capsule.—*Juncus spicatus* Willd.

HAB. White Hills, N. H. Big. Aug. 2f.—Stem a span high, slender, with an oblong nodding head.

3. NARTHECIUM. Linn.

Perianth 6-parted, coloured. *Stamens* 6; *filaments* hairy. *Seeds* numerous, ovate-oblong, appendiculate at each extremity. *Hexandria. Monogynia.*

N. americanum Ker.: raceme sometimes interruptedly spiked, lax; pedicels with a setaceous bract below the flower, and another embracing its base; filaments with very short hair.—*Phalangium ossifragum* Muhl.

HAB. Sandy swamps. N. S. June, July. 2f.—*Scape* a foot high. *Leaves* narrow-ensiform. *Flowers* yellow, in a terminal spike.

ORDER, CXXIX. HÆMODORACEÆ. Brown. Lind.

Perianth petaloid, 6-cleft. *Stamens* inserted on the perianth, either 3 and opposite the inner segments, or 6; *anthers* bursting inwardly. *Ovary* with the cells 1-2- or many-seeded; *style* simple; *stigma* undivided. *Fruit* capsular, 3-valved, seldom indehiscent, somewhat nucamentaceous. *Seeds* definite and peltate or indefinite; *testa* papery; *embryo* minute, in farinaceous albumen; *radicle* next the hilum.

Leaves equitant or arranged spirally or alternately.

1. LACHNANTHES. Ell.

Perianth superior, 6-parted; segments unequal. *Stamens* 3. *Style* declining. *Stigma* minutely 3-lobed. *Capsule* 3-celled, truncated, many-seeded. *Triandria. Monogynia.*

L. tinctoria Ell.—*Dilatis tinctoria* Pursh.

HAB. Sandy swamps. N. J. to Flor. July. 2f.—*Stem* erect, 2 feet high, hairy at the top. *Leaves* ensiform, shorter than the stem. *Flowers* in a corymbose panicle, woolly, yellow within.

Red Roof.

2. LOPHIOLA. Ker.

Perianth 6-parted, woolly, bearded inside. *Stamens* 6. *Filaments* naked. *Anthers* erect. *Stigma* undivided. *Capsule* opening at the summit. *Hexandria. Monogynia.*

L. aurea Ker.—*Conostylis americana* Pursh.—*Helonias tomentosa* Muhl.

HAB. Sandy swamps. N. J. to Car. July. 2f.—*Root* creeping. *Leaves* radical, gramineous, ensiform, shorter than the scape. *Scape* erect, with 1 or 2 short leaves. *Flowers* yellow, in a crowded corymb.

ORDER CXXX. BROMELIACEÆ. *Juss. Lind.*

Perianth tubular, 6-cleft, in 2 rows; outer persistent; inner petaloid, withering or deciduous. *Stamens* 6, inserted into the base of the segments of the perianth. *Ovary* free or somewhat cohering, 3-celled; *style* single; *stigma* 3-parted, often twisted. *Fruit* capsular or succulent, 3-celled. *Seeds* indefinite; *embryo* cylindrical, recurved, lying in the base of mealy albumen.

Stemless or *short-stemmed* plants. *Leaves* rigid, channelled, often thorny or toothed at the margin.

1. AGAVE. *Linn.*

Perianth tubular, funnel-form, adhering to the ovary, 6-parted. *Stamens* 6, exserted. *Anthers* versatile. *Capsule* ovate, attenuate at each end, obtusely triangular, 3-celled, many-seeded. *Hexandria. Monogynia.*

A. virginica *Linn.*: stemless, herbaceous; leaves with cartilaginous serratures; scape simple; flowers sessile.

HAB. Rocky banks. Penn. to Car. Sept. 24.—*Scape* 6 feet high. *Flowers* greenish-yellow, very fragrant. *False Aloe.*

ORDER CXXXI. COMMELINEÆ. *Brown. Lind.*

Perianth in 2 rows; outer herbaceous, 3-parted; inner petaloid, 3-parted or trifold. *Stamens* 6 or fewer, hypogynous, some of them either deformed or abortive. *Ovary* 3-celled; cells few-seeded; *style* 1; *stigma* 1. *Capsule* 2—3-celled, 2—3-valved, loculicide. *Seeds* often in pairs in each cell; *hilum* usually linear and lateral; *albumen* densely fleshy; *embryo* pulley-shaped, lying in a cavity of the albumen, and at the opposite extremity from the hilum.

Herbs. *Leaves* usually sheathing at the base.

1. COMMELINA. *Linn.*

Perianth in 2 rows; outer one 3-parted, calycine; inner 3-parted, petaloid. *Stamens* 6, 3—4 sterile and furnished with cruciform glands. *Capsule* 3-celled, 3-valved; one of the valves often abortive. *Triandria. Monogynia.*

1. *C. angustifolia* *Mich.*: assurgent; slender; inner segments of the perianth unequal, (one very minute); leaves linear-lanceolate; sheaths ciliate; bracts peduncled, short-cordate.—*C. erecta* *Willd.*

HAB. Sandy soils. N. Y. to Car. June. 2f.—Stem a foot high, procumbent and erect. Flowers blue. Fertile stamens 2.

Day Flower.

2. *C. virginica* Linn. : inner segments of the perianth nearly equal ; leaves lanceolate, somewhat petiolate, with the throat bearded ; stem erect.—*C. longifolia* Mich.

HAB. Woods. Penn. Muhl. S. to Car. July. 2f.—Stem 2 feet high. Flowers blue, clustered at the top of the stem. Fertile stamens 3.

2. TRADESCANTIA. Linn.

Perianth in 2 rows ; outer one 3-parted ; inner one 3-parted petaloid. Filaments 6, villous. Capsule superior, 3-celled, many-seeded. Hexandria. Monogynia.

1. *T. virginica* Linn. : stem erect, branching, smooth ; leaves long, lanceolate, smooth ; flowers in an imperfect umbel, sessile, pubescent.—*T. cristata* Walt.

HAB. Shady woods. Penn. to Car. W. to Miss. May. 2f.—Stem a foot high. Flowers purple, in terminal compound clusters or umbels, with a large 2-leaved involucre at base.

Spider Wort.

2. *T. rosea* Mich. : erect, simple ; leaves linear, long, smooth ; peduncles elongated ; calyx smooth.—*T. virginica* Walt.

HAB. Moist woods. Penn. to Geor. May. 2f.—Stem 8—12 inches high. Flowers smaller than in preceding, with the inner segments rose coloured, and three times as long as the outer ones.

ORDER CXXXII. ALISMACEÆ. Brown. Lind.

Perianth 6-parted, in two rows ; outer herbaceous, inner petaloid. Stamens definite or indefinite, hypogynous. Ovaries of several 1-celled carpels ; ovules erect or ascending, solitary or in pairs, at a distance from each other ; styles and stigmas several. Fruit dry, not opening, 1 or 2-seeded. Seeds without albumen ; embryo shaped like a horse-shoe ; radicle next the hilum.

Floating plants. Leaves with parallel veins.

1. SAGITTARIA. Linn.

Monoecious. Perianth 6-parted ; 3 outer segments persistent calycine ; 3 inner coloured, petaloid. STERILE FL. Stamens about 24. FERTILE FL. Ovaries numerous. Capsules compressed, margined, 1-seeded.

Monoecia. Polyandria.

1. *S. sagittifolia* Willd.: leaves sagittate, acute; lobes acute, straight, lanceolate.

a. latifolia Torr.: leaves broad ovate, rather obtuse; lobes ovate, slightly acuminate, straight.—*S. latifolia* Pursh.

b. hastata Torr.: leaves oblong-lanceolate, acute; lobes spreading, lanceolate, long, acuminate; flowers mostly dioecious.—*S. hastata* Pursh.

c. gracilis Torr.: leaves linear; lobes much spreading, linear, very long and acute.—*S. gracilis* Pursh.

d. pubescens Torr.: leaves and stem pubescent; bracts and calyx very pubescent.—*S. pubescens* Muhl.

HAB. Ponds. Can. to Car. July, Aug. 2f.—Scape 1—2 feet high. Leaves large. Flowers white, whorled in threes.—The above account of this species which is from Torrey's Compendium, will show the very variable character of the plant.

Arrow-head.

2. *S. obtusa* Willd.: leaves sagittate, dilated-ovate, rounded at the extremity, mucronate; lobes approximate, oblong, obliquely acuminate, straight; flowers dioecious; sterile scape branched at base.

HAB. Ditches and ponds. Penn. to Vir. July. 2f.—Leaves the size of *Calla palustris*. Flowers white.—The plant affords a milky sap which hardens into a white and hyaline gum. Nutt.

3. *S. heterophylla* Pursh: leaves simple, linear and lanceolate, acute at each end, or elliptical and sagittate, with the lobes linear and divaricate; scape simple, few-flowered; flowers monoecious, the fertile subsessile; bracts short, suborbiculate.

HAB. Bogs and ditches. Penn. to Vir. July. 2f.—Scape a foot high. Leaves 2 1-2 inches long.—The species is easily distinguished by its fertile flowers being sessile.

4. *S. rigida* Pursh: leaves narrow-lanceolate, carinate below, rigid, very acute at each end; scape branched; flowers monoecious.

HAB. Deep water near Oswego Falls, N. Y. July, Aug. Pursh. 2f.—Grows in a depth of more than 7 feet water. Petioles strong and stiff. Flowers very numerous.

5. *S. simplex* Pursh: leaves linear-lanceolate, acute, narrowed towards the base; scape simple, many-flowered; flowers dioecious; bracts and calyx obtuse and rounded.

HAB. Ponds. N. J. Aug. 2f.—Scape 8—12 inches high. Leaves 6 inches long, 1-2 an inch wide. Flowers small, 12—18 in a scape.

6. *S. acutifolia* Pursh: leaves acutely subulate, sheathing at base, convex on the back; scape simple, few-flowered; flowers monoecious; bracts dilated, acuminate.

HAB. Muddy shores. Mass. N. Y. and Penn. July, Aug. 2f.—Scape 6 inches high. Flowers pedunculate.—Found by Dr. Bigelow near Boston, and by Dr. S. B. Mead at Peekskill, N. Y.

7. *S. pusilla* Nutt.: leaves linear, obtuse and short, the summits foliaceous; scape simple, shorter than the leaves; flowers monoecious,

few ; fertile one solitary, deflexed ; stamens mostly 7.—*Alisma subulata* Pursh.

HAB. Muddy banks. Penn. to Geor. Aug. 24.—Scape 2—4 inches high. Leaves rarely ever subulate, scarcely a line wide, and obtuse. Sterile Flowers 3—6. Fertile 1, recurved.

8. *S. natans* Mich. : leaves floating, elliptic-lanceolate, obtuse, 3-nerved, attenuated at base ; lower ones subcordate ; scape simple, few-flowered ; lower peduncles elongated.

HAB. In water. Muhl. S. to Car. July, Aug. 24.—Scape mostly erect, 3—6 inches long. Leaves generally floating, 1—2 inches long. Flowers few, small, the upper sterile. Ell.

2. ALISMA. Linn.

Perianth 6-parted ; 3 outer segments persistent, calycine ; 3 inner coloured, petaloid. *Stamens* 6. *Ovaries* and *styles* numerous. *Capsules* numerous, distinct, 1-seeded, not opening. *Hexandria. Polygynia.*

A. plantago Linn. : leaves ovate-cordate, acute or obtuse, 9-nerved ; flowers in a compound verticillate panicle ; fruit obtusely triangular.

b. parviflora Torr. : leaves oval, 5—7-nerved, acuminate ; flowers very small.—*A. parviflora* Pursh.

HAB. In water. Can. to Flor. July, Aug. 24.—Scape 1—2 feet high, triangular. Leaves all radical, on long petioles. Panicle much decomposed in a verticillate manner. Flowers white, tinged with purple—Var. *b.* has the flowers smaller and the leaves not more than 7-nerved. It generally grows near salt water. *Water Plantain.*

ORDER CXXXIII. JUNCAGINÆ. Rich. Lind.

Perianth herbaceous, rarely wanting. *Stamens* 6, hypogynous. *Ovary* of 3 or 6 carpels, cohering firmly together ; *ovules* 1 or 2 in each carpel, erect, approximated at the base. *Fruit* dry. *Seeds* 1—2, erect ; *albumen* none ; *embryo* straight ; *radicle* at the opposite extremity from the hilum ; *plumule* emitted through a lateral cleft in the embryo.

Herbs growing in bogs. *Leaves* ensiform, with parallel veins.

1. TRICHOCHIN. Linn.

Perianth 6-leaved, deciduous ; the leaflets concave, 3 inner ones inserted higher up. *Stamens* 6, very short. *Antthers* with their anterior side turned outward, subsessile. *Ovaries* 3—6, 1-seeded. *Styles* short. *Stigmas* adnate. *Capsules* 3—6, valveless. *Seeds* erect. *Hexandria. Trigynia.*

1. *T. palustre* Linn.: fruit of 3 united capsules, nearly linear, attenuated at the base.

HAB. Marshes. Salina, N. Y. N. to Arc. Amer. July. 2f.—
Scape a foot long, very slender. Leaves very numerous, fleshy, nearly as long as the scape. Flowers small, greenish, in a terminal lax spike or raceme. Arrow Grass.

2. *T. maritimum* Linn.: fruit ovate-oblong, of 6 united capsules—and *T. elatum* Nutt.

HAB. Salt marshes. Can. and N. S. W. to Mich. July. 2f.—
Scape 18 inches long, angled. Leaves all radical, narrow, sheathing at base, shorter than the scape. Flowers very small in a long terminal spike.

2. SCHEUCHZERIA. Linn.

Perianth 6-parted. Stamens 6. Anthers linear. Stigmas sessile, lateral. Ovaries 3—6. Capsules compressed, inflated, 2-valved, 1—2-seeded. Hexandria. Trigynia.

S. palustris Linn.

HAB. Sphagnous swamps. Ver. N. Y. Penn.; rare. July. 2f.—
Stem 8—12 inches high. Leaves linear, roundish, sheathing at base. Flowers greenish-yellow, in a small terminal raceme.

ORDER CXXXIV. TYPHACEÆ. Lind.

Flowers diclinous, arranged upon a naked spadix. Perianth 3-parted. Stamens 3 or 6; filaments long and slender; anthers wedge-shaped, erect. Ovary single, superior, 1-celled, ovule solitary, pendulous; style short; stigmas 1—2, linear, simple. Fruit dry, indehiscent, 1-celled, 1-seeded. Embryo in the centre of albumen straight, taper, with a cleft in one side, in which lies the plumule; radicle next the hilum.

Herbs growing in marshes or ditches. Stems without nodi. Leaves rigid, ensiform, with parallel veins.

1. SPARGANIUM. Linn.

Monoecious. Ament dense, spheric. STERILE FL. Perianth 3-leaved. FERTILE FL. Perianth 3-leaved. Drupe dry, 1-seeded. Monoëcia. Triandria.

1. *S. ramosum* Smith: leaves triangular at base, their sides concave; common flower-stalk branched; stigma linear.—*S. erectum* Linn.

HAB. Stagnant waters. Can. to Vir. July, Aug. 2f.—
Stem 2 feet high. Leaves few, ensiform. Flowers white, in round heads. Burr Reed.

2. *S. americanum* Nutt. : lower leaves equal with or exceeding the stem, which is nearly simple ; floral ones concave at base and erect ; stigma always simple, ovate-oblong, oblique, scarcely more than half the length of the style.—*P. simplex* Pursh. ?

HAB. Ponds and lakes. N. Y. to Car. Aug. 24.—*Stem* a foot high, simple or divided at base. *Lower leaves* carinate. *Fertile heads* 2—5, mostly sessile.

3. *S. natans* Smith : leaves floating, flat ; common flower-stalk simple ; stigma ovate, very short ; head of sterile flowers subsolitary.—*S. angustifolium* Mich.

HAB. Lakes, &c. Can. and N. S. Aug. 24.—*Stem* long and slender. *Leaves* very long, pellucid.—Found by Mr. G. W. Clinton, in a lake on Catskill mountains.

2. TYPHA. Linn.

Flowers collected into a long dense cylindrical spike. **STERILE FL.** *Perianth* none. *Stamens* 3, together upon a chaffy or hairy receptacle, united below into one common filament. **FERTILE FL.** *Perianth* none. *Pericarp* pedicellate, surrounded at base with hairs resembling a *pappus*.

Monoecia. Triandria.

1. *T. latifolia* Linn. : leaves linear, nearly flat ; sterile and fertile spikes close together, both cylindrical.

HAB. Marshes and pools. Can. to Car. July, Aug. 24.—*Stem* 5—6 feet high. *Leaves* very long. *Flowers* in a compact cylindrical spike. *Cat Tail. Reed Mace.*

2. *T. angustifolia* Linn. : leaves linear, channelled ; sterile and fertile spikes a little distant from each other ; both cylindrical.

HAB. Marshes, &c. N. Y. to Vir. July, Aug. 24.—*Stem* 4—5 feet high. *Leaves* narrower than in the preceding.

ORDER CXXXV. AROIDEÆ. Juss. Lind.

Flowers diclinous, arranged upon a spadix, often naked. *Perianth* 4—6-parted, or wanting. *Stamens* definite or indefinite, hypogynous, very short ; *anthers* 1-2- or many-celled, ovate, turned outwards. *Ovary* free, 1- rarely 3-celled ; *stigma* sessile. *Fruit* succulent or dry, not opening. *Seeds* solitary or several ; *embryo* in the axis of fleshy or mealy albumen, straight, cylindrical, with a cleft on one side in which lies the plumule ; *radicle* next the hilum, rarely at the opposite extremity.

Herbs or *shrubs*. *Roots* often tuberous or thickened. *Leaves* sheathing at base, with parallel or branching veins.

1. ACORUS. Linn.

Spadix cylindric, covered with flowers. *Perianth* glumaceous, 6-petalled, naked. *Stamens* 6. *Ovary* 1. *Style* none. *Capsule* 3-angled, 3-celled.

Hexandria. Monogynia.

A. calamus Linn. : *spadix* protruding from the side of an ensiform leaf.

HAB. Swamps. Can. to Car. June. 2f.—*Leaves* 2—3 feet long. *Scape* leafy above the *spadix*. *Spadix* cylindrical, thick, covered with minute greenish-flowers. The root is aromatic.

Sweet Flag.

2. ORONTIUM. Linn.

Spadix cylindric, crowded with flowers. *Perianth* 6-petalled, naked. *Style* and *stigma* scarcely any. *Utricle* 1-seeded.

Hexandria. Monogynia.

O. aquaticum Linn. : leaves all radical, lanceolate-ovate ; *scape* cylindrical, spiked.—*Pothos ovata* Walt.

HAB. In water. Can. to Flor. May. 2f.—*Leaves* radical, becoming large, varying in breadth. *Flowers* yellow, in a close cylindrical spike, with a peculiar smell.

Golden Club.

3. ARUM. Linn.

Spathe 1-leaved, cucullate, convolute at base. *Spadix* naked at the extremity, with sessile anthers in the middle and ovaries at the base. *Berry* 1-celled, many-seeded.

Monoecia. Polyandria.

1. *A. dracontium* Linn. : stemless ; leaves pedate ; leaflets lanceolate-oblong, entire ; *spadix* subulate, longer than the oblong convolute spathe.

HAB. Banks of streams. N. Y. to Flor. June, July. 2f.—*Scape* about a foot long. *Leaf* 1, on a petiole as long as or longer than the scape. *Spathe* short, convolute.—Found on the banks of the Hudson, near Albany.

Green Dragon.

2. *A. triphyllum* Linn. : stemless ; leaves ternate ; leaflets oval, acuminate, very entire ; *spadix* clavate ; *spathe* peduncled, ovate, acuminate, convolute below, flat and bent over above.

HAB. Wet woods. Can. to Car. May, June. 2f.—*Root* tuberous. *Leaves* 1—2, on long petioles. *Spathe* green or purple.—Whole plant acrid and almost caustic. *Big. Med. Bot.* i. 52.

Indian Turnip.

3. *A. atrorubens* Linn. : stemless ; leaves ternate ; leaflets ovate, acuminate ; *spadix* cylindrical ; *spathe* sessile ovate, acuminate, spreading horizontally above.

HAB. Swamps. Penn. to Vir. May, June. 2f.—*Spathe* dark brown; smell disagreeable.—Mr. Schweinitz informs me that this plant is found at Easton, Penn., and he thinks it distinct from the preceding.

4. RENSSELAERIA. Beck.

Spathe convolute. *Spadix* covered with flowers, fertile at the base, sterile above. *Perianth* none. *Berry* 1-seeded.

Monoecia. Polyandria.

Obs. This genus, proposed by Mr. William Cooper of New-York, was named by him *Leontia*, in honor of the distinguished naturalist, Capt. John Le Conte, of the U. S. army. But this name, which was adopted by Dr. Torrey in his Compendium, is applied by A. Richard to a genus of the order RUBIACEÆ, and confirmed by De Candolle in his Prodrômus. I have therefore changed that of Mr. Cooper's genus, by calling it after the Hon. Stephen Van Rensselaer; who, for his efficient patronage of the Natural Sciences, is entitled to the respect and gratitude of all their cultivators.

R. virginica Beck.—*Arum virginicum* Linn.—*Calla virginica* Mich. Big.—*Leontia virginica* Coop. Torr. Eat.

HAB. Swamps. N. Y. to Car. July. 2f.—*Scapes* several from one root, 12—18 inches long. *Leaves* on long petioles, oblong, hastate-cordate, with the lobes obtuse, a foot or more long. *Spathe* lanceolate, involute, border undulate, closely embracing the spadix, which is long and slender. *Berries* 1-seeded.

5. CALLA. Linn.

Spathe ovate, somewhat flattened. *Spadix* covered with flowers. *Perianth* none. *Berry* many-celled, many-seeded.

Monoecia. Polyandria.

C. palustris Linn.: leaves cordate; spathe flat; spadix covered with perfect flowers.

HAB. Sphagnous swamps. Can. and N. S. July, Aug. 2f.—*Root* thick and creeping. *Scape* 6—8 inches high. *Leaves* on long petioles, cordate, acuminate, with an involute point. *Spathe* oval, green on the outside, white within. *Water Arum.*

6. SYMPLOCARPUS. Salisb.

Spathe ventricose-ovate, acuminate. *Spadix* roundish, covered with perfect flowers. *Perianth* deeply 4-parted, persistent; segments cucullate, truncate, becoming thick and spongy. *Style* pyramidal, 4-sided. *Stigma* simple, minute. *Seeds* numerous, globular, imbedded in the spadix.

Tetrandria. Monogynia.

S. fatidus Nutt.—*Ictodes fatidus* Big.—*Pothos fatida* Mich.

HAB. Wet meadows. Can. to Vir. Feb.—April. 2f.—*Root*

large, with thick fibres. *Leaves* very large, cordate-ovate, smooth. *Spathe* ovate, cucullate, purple, spotted with green and yellow. *Spadix* peduncled.—Whole plant very fetid. Medicinal. *Big. Med. Bot.* ii. 41. *Skunk Cabbage.*

ORDER CXXXVI. PISTIACEÆ. *Rich. Lind.*

Flowers 2, naked, enclosed in a spathe. *Stamens* definite, 2—7. *Ovary* 1-celled, with one or more erect *ovules*; *style* short; *stigma* simple. *Fruit* membranous or capsular, not opening. *Seeds* 1 or more, with a fungous integument and a thickened indurated foramen; *embryo* either in the axis of fleshy albumen and having a lateral cleft for the emission of the *plumule*, or at the apex of the nucleus.

Floating plants, with very cellular, lenticular, or lobed *stems* and *leaves* confounded.

1. LEMNA. *Linn.*

Sterile and fertile *flowers* collateral. *Stamens* 2. *Utricle* 1—5-seeded. *Diandria. Monogynia.*

OBS. For an excellent and detailed account of this singular genus, I would refer to Dr. Hooker's *Flora Scotica*.

1. *L. trisulca* *Linn.*: fronds thin, elliptic-lanceolate, caudate at one extremity, at the other serrate; root solitary.

HAB. Ditches and ponds. N. S.; rarely in flower. July. ☉.
—*Fronds* half an inch or more in length, thin, margin pellucid; young fronds produced from lateral clefts, of the same shape as the parent plant, and again proliferous before they are detached. *Flowers* very minute. *Root* a single fibre.

Duck's Meat.

2. *L. minor* *Linn.*: fronds nearly ovate, compressed; root solitary.

HAB. Stagnant waters. N. S. June, July. ☉.—*Fronds* a line and a half long, slightly convex beneath, somewhat fleshy, increasing rapidly by *gemmae* (young fronds) so as often completely to cover the surface of stagnant water.

3. *L. gibba* *Linn.*: fronds broadly ovate, almost flat above, hemispherical and pale beneath; root solitary.

HAB. Stagnant waters, near Liverpool, N. Y. *Pursh.* June, July. ☉.—Distinguished from the former by its being pale and hemispherical beneath, and appearing reticulated.

4. *L. polyrrhiza* *Linn.*: fronds obovate-rotundulate, compressed; roots numerous, fascicled.

HAB. Stagnant waters. June, July. ☉.—*Fronds* 3—4 lines long, succulent, of a firm texture. *Root* a bundle of 8 or 10 simple fibres in the middle of the frond.

ORDER CXXXVII. FLUVIALES. *Lind.*

Flowers monoclinal or diclinal. *Perianth* 2- or 4-parted, often deciduous, rarely wanting. *Stamens* definite, hypogynous. *Ovaries* 1 or more, superior; *ovule* solitary; *style* 1 or none; *stigma* simple. *Fruit* dry, not opening, 1-celled, 1-seeded. *Seed* pendulous; *albumen* none; *embryo* straight or curved, with a lateral cleft for the emission of the *plumule*.

Water plants. *Leaves* very cellular, with parallel veins.

1. ZOSTERA. *Linn.*

Stamens and *pistils* separated, inserted in 2 rows upon one side of a *spadix*. *Spathe* foliaceous. *Perianth* none. STERILE FL. *Anthers* ovate, sessile, alternating with the germs, and upon the same *spadix*. FERTILE FL. *Ovary* 1, ovate. *Style* bifid. *Drupe* 1-seeded. *Monoecia. Monandria.*

Z. marina *Linn.*: leaves entire, somewhat 3-nerved; stem roundish.

HAB. Muddy shores. N. Y. to Car. Aug. 21.—*Stem* terete, flexuous, throwing out roots from the joints. *Leaves* very long and narrow. *Spadix* linear, with the *flowers* all on one side, in 2 rows. *Grass-cruck.*

2. CAULINIA. *Willd.*

Monoecious. *Perianth* none. STERILE FL. *Anther* sessile. FERTILE FL. *Style* filiform. *Stigma* bifid. *Capsule* 1-seeded. *Monoecia. Monandria.*

1. *C. fragilis* *Willd.*: leaves ternate or opposite, linear-subulate, recurved, acuminate-dentate, rigid.

HAB. In water. Penn. Aug. 22.—*Stem* long, submerged. *Flowers* small.

2. *C. flexilis* *Willd.*: leaves whorled in sixes, linear, denticulate at the apex, spreading.

HAB. Ponds and ditches. N. Y. to Car. Aug. 22.—*Stem* 1—2 feet long, submerged, branching, jointed. *Flower* solitary, axillary, sessile.

3. ZANNICHELLIA. *Linn.*

Monoecious. STERILE FL. *Perianth* none. *Stamen* 1. FERTILE FL. *Perianth* single, of 1 leaf. *Ovaries* 4 or more. *Style* 1. *Stigma* peltate. *Capsule* sessile.

Monoecia. Monandria.

1. *Z. palustris* *Linn.*: anthers 4-celled; stigmas entire; pericarps toothed on the back.

HAB. Ditches. N. S. Torr. July, Aug. ☉.—Stem long, filiform. Leaves opposite, linear. Flowers axillary, small.
Horn Pond-weed.

2. *Z. intermedia* Torr. : anther 2-celled; stigmas dentate-crenate; seed smooth, entire on the back.

HAB. Salt marsh ditches. July. ☉.—Submerged. Stem filiform. Leaves entire. Flowers inconspicuous. Torr.

4. RUPPIA. Linn.

Flowers 2, perfect, on a *spadix* arising from the sheathing base of the leaves. Stamens 4, sessile. Ovaries 4. Perianth none. Drupes 4, pedicellate; nuts 1-seeded.

Tetrandria. Tetragynia.

R. maritima Linn.

HAB. Salt marshes. N. J. to Geor. July. 2f.—Stem long, filiform, branched, floating. Leaves linear, setaceous, with inflated sheaths. Spadix short, with 2 naked green flowers. Anthers large.

5. POTAMOGETON. Linn.

Flowers perfect, on a *spadix* arising from a *spathe*. Perianth single, 4-leaved. Anthers 4, sessile, alternating with the divisions of the perianth. Ovaries 4. Nuts 4, 1-seeded, sessile.

Tetrandria. Tetragynia.

* Upper leaves floating.

1. *P. natans* Linn. : upper leaves floating, coriaceous, on long petioles, oblong-ovate; lower ones membranous, linear-lanceolate, gradually tapering into a petiole.—*P. natans b. Mich.*

HAB. Ponds and lakes. N. S. July, Aug. 2f.—Stem varying in length. Leaves sometimes cordate. Spadix 1—2 inches long, rising above the water. Pond Weed.

2. *P. fluitans* Linn. : upper leaves floating, subcoriaceous, ovate-lanceolate, obtuse, tapering into a rather short petiole; lower ones very long, lanceolate, membranous and sessile.

HAB. Ponds and streams. N. Y. to Car. July, Aug. 2f.—Stem varying in length. Leaves reddish, less coriaceous than in the preceding. Spadix an inch long, almost submerged.

3. *P. heterophyllum* Schreb. : upper leaves floating, coriaceous, elliptical, petiolate; lower ones membranous, linear-lanceolate, sessile.—*P. hybridum* Mich.

HAB. Stagnant water. N. Y. to Car. Aug. 2f.—Smaller than the former. In flowing water the lower leaves are very long and narrow.

4. *P. diversifolium* Bart. : upper leaves floating, elliptical, petiolate,

5-nerved; lower ones filiform; spadix axillary, almost sessile, few-flowered.—*P. setaceum* Pursh.

HAB. Ponds and small streams. N. S. June. 2f.—Stems numerous, branched, filiform. Upper leaves scarcely an inch long. Spadix 4—6-flowered.

** Leaves all submersed.

5. *P. perfoliatum* Linn.: leaves clasping, cordate, ovate.

HAB. Lakes, &c. Can. to Penn. Aug. 2f.—Stem dichotomous. Leaves an inch or more in length, appearing perfoliate. Spadix few-flowered, on a short peduncle.

6. *P. lucens* Linn.: leaves ovate-lanceolate, petiolate.

HAB. Rivers and lakes. Can. to Car. Aug. 2f.—Stem long, branched. Leaves large, very pellucid and finely veined. Spadix cylindrical, many-flowered.

7. *P. densum* Linn.: leaves opposite, crowded, ovate, acuminate, sessile; stem forked; spike about 4-flowered, on very short peduncles.

HAB. Pools, &c. Bethlehem, Penn. Schwecinitz.

8. *P. crispum* Linn.: leaves lanceolate, tapering, sessile, much waved, serrate.

HAB. Lakes. Can. to Vir. Pursh. Aug. 2f.—Stem long, much branched. Leaves 1—1-2 inches long, 2—3 lines broad, crisp to the touch. Spadix 8—10 flowered.

9. *P. compressum* Linn.: leaves linear, very obtuse, sessile; stem compressed, 4—6-flowered.

HAB. In water. N. S. July, Aug. 2f.—Plant small. Stem much branched, thick. Leaves 2 inches long, linear.

10. *P. pauciflorum* Pursh: leafy; leaves sessile, narrow linear, flat; the upper verticillate; spadix capitate, 4-flowered; stem slender, terete.—*P. gramineum* Mich.

HAB. Ponds and rivers. N. Y. to Car. July, Aug. 2f.—Stem almost filiform, much branched. Leaves 2—3 inches long, not more than half a line broad.

11. *P. pectinatum* Linn.: leaves distichous, setaceous, alternate, sheathing; stipules scarcely any; spadix few-flowered, interrupted.—*P. marinum* Mich.

HAB. Ponds. Can. and N. S. June. 2f.—Stem filiform, much branched. Leaves very numerous, giving to the plant a pectinated appearance.

SUBCLASS II. GLUMACEÆ. Lind.

Flowers destitute of a true perianth, but consisting of imbricated bracts.

ORDER CXXXVIII. GRAMINEÆ. Juss. Lind.

Flowers usually monoclinal, sometimes monoecious or

polygamous ; consisting of imbricated bracts, of which the most exterior are called *glumes*, (*calyx* of Linnæus,) the interior immediately enclosing the stamens *paleæ*, (*corol* Linn.) and the innermost at the base of the ovary *scales*, (*nectary* Linn.) *Glumes* usually 2, alternate, sometimes single, most commonly unequal. *Paleæ* 2, alternate ; the lower or exterior simple ; the upper or interior composed of 2 united by their contiguous margins, and usually with 2 keels, together forming a kind of dislocated calyx. *Scales* 2 or 3, sometimes wanting ; if 2, collateral, alternate with the paleæ, and next the lower of them ; distinct or united. *Stamens* hypogynous, 1—6, or rarely indefinite ; *anthers* versatile. *Ovary* simple ; *styles* 2, rarely 1 or 3 ; *stigmas* feathery or hairy. *Pericarp* usually undistinguishable from the seed, membranous. *Albumen* farinaceous ; *embryo* lying on one side of the albumen near its base.

Culms cylindrical, hollow, jointed. *Leaves* alternate, with a split sheath. *Flowers* in little spikes called *locustæ*, arranged in a spiked, racemed, or paniced manner. .

DIV. I. AGROSTIDÆ. *Inflorescence* paniced, sometimes contracted into the form of a spike. *Spikelets* solitary, 1-flowered. *Glumes* and *paleæ* of nearly similar texture, most usually with a keel. *Lower paleæ* either bearded or beardless, the upper never with 2 keels.

1. AGROSTIS. Linn.

Glume naked, beardless, 2-valved, 1-flowered ; *valves* longer than the paleæ. *Paleæ* 2, membranous, often hairy at base, enclosing the seed. *Triandria. Digynia.*

1. *A. stricta* Willd. : panicle elongated, straight ; valves of the glume equal ; paleæ smaller than the valves, unequal, with an awn at the base of the outer one longer than the flower.

HAB. Fields. N. Eng. Muhl. Junc. 2f. —Culm erect, smooth with black nodes. *Leaves* linear-lanceolate, scabrous on the margin. *Awn* geniculate, twice as long as the flower.

2. *A. vulgaris* Smith : panicle with smoothish and at length divaricate branches ; paleæ unequal, outer one 3-nerved ; stipule very short and truncate.—*A. hispida* Willd.

HAB. Meadows. Throughout the U. S. July. 2f. —Culm 18—20 inches high, ascending, smooth. *Leaves* flat, scabrous. *Flowers* purplish. Introduced. *Red-top.*

3. *A. alba* Linn. : panicle lax, with hispid and spreading branches ;

paleæ shorter than the glume, outer one 5-nerved; stipule oblong.—*A. decumbens* Muhl.—*A. stolonifera* Smith.

HAB. Meadows. N. S. June—Aug. ☉.—Root creeping. Culm assurgent, often throwing out runners. Leaves nerved, scabrous. Anthers yellow. Introduced. Fiorin Grass.

4. *A. lateriflora* Mich.: culm erect, branched above, soboliferous at base; panicles lateral and terminal, contracted, dense, a little secund; glume acuminate; paleæ longer than the glume, equal, pubescent at base, awnless.—*A. mexicana* Muhl.

b. *filiformis* Torr.: panicle very slender; paleæ nearly equalling the glume.—*A. filiformis* Muhl.

HAB. Swamps. N. S. Aug., Sept. 2f.—Root creeping. Culm 2 feet or more high. Leaves broad linear, flat. Anthers pale purple.

5. *A. sobolifera* Muhl.: culm erect, branched; panicle contracted, filiform, simple, with appressed alternate branches; paleæ longer than the equal glumes, equal, awnless, hairy at base, mucronate at the tip.

HAB. Rocky hills. N. S. Aug., Sept. 2f.—Culm 2 feet high, soboliferous, sometimes decumbent. Leaves pale green, somewhat scabrous.

6. *A. tenuiflora* Willd.: culm nearly simple, pubescent about the joints; branches appressed; panicle contracted, filiform; paleæ longer than the glume; lower one with an awn twice as long as the flower.

HAB. Rocky woods. Can. to Car. July, Aug. 2f.—Root creeping. Culm 3 feet or more high. Leaves few, spreading, strongly nerved.

7. *A. sylvatica* Torr.: culm erect, much branched, diffuse, smooth; sheaths lacerate; panicle filiform; paleæ longer than the glume; awns three times as long as the flower.—*A. diffusa* Muhl.

HAB. Rocks. N. J. Aug. 2f.—Root creeping. Culm 2—3 feet high.—Resembles the preceding, but is distinguished by its branched diffuse culm.

8. *A. compressa* Torr.: whole plant very smooth; culm erect, compressed, simple; panicle oblong, subcontracted; glumes equal, shorter than the paleæ, acute; paleæ rather obtuse, smooth at the base.

HAB. Sandy swamps. N. J. Sept. 2f.—Root creeping. Culm soboliferous. Leaves linear, long, compressed, with carinate sheaths. Panicle purple.

9. *A. serotina* Torr.: culm filiform, much compressed; leaves very narrow, carinate, erect; panicle attenuate; glume unequal, half as long as the awnless paleæ.

HAB. Sandy swamps. N. J. Sept. 2f.—Culm 12—18 inches high. Leaves almost filiform. Panicle slender, with the branches flexuous.

10. *A. juncea* Mich.: leaves straight and erect, convolutely setaceous; panicle oblong-pyramidal, verticillate; paleæ awnless, twice the length of the glume.—*A. indica* Muhl.

HAB. Sandy barrens. N. J. to Flor. Oct. 24.—*Culm* 1—2 feet high, terete. *Flowers* purple. *Glume* unequal. *Scales* obovate.

11. *A. virginica* Linn. : culms numerous, procumbent at base, assurgent; leaves subdistichous, involute, rigid; panicles lateral and terminal, spike-form; the lateral ones concealed; glume equal, about as long as the paleæ.—*A. pungens* Pursh.

HAB. Sandy soils. N. Y. to Vir. Sept. Oct. 24.—*Culms* a foot high, hairy at base, with swollen sheaths. *Anthers* purple.

12. *A. longifolia* Torr. : panicle contracted, spiked, generally concealed; paleæ much longer than the glume, subequal, smooth and spotless, without awns; leaves very long, filiform and recurved at the apex.

HAB. Sandy fields. N. S. Sept. Oct. 24.—*Culm* 2—4 feet high, simple, terete. *Leaves* 2 feet long. *Panicle* sometimes exserted.

13. *A. clandestina* Spreng. : panicle spiked, partly concealed; paleæ unequal, much longer than the glume, hairy and spotted, slightly awned; leaves very long.

HAB. Dry hills. Penn. to Car. Sept. 24.—*Culm* 2 feet high, terete. *Panicle* often sooty. *Glume* carinate.

14. *A. spica-venti* Willd. : outer paleæ with a very long straight awn; panicle spreading.

HAB. N. S. June. 24.—*Culm* 18 inches high. Introduced.

15. *A. canina* Willd. : culm prostrate, somewhat branching; paleæ with a recurved dorsal awn.

HAB. Wet meadows. July. 24.—Introduced.

2. TRICHODIUM. Mich.

Glume 2-valved, 1-flowered. *Palea* 1, shorter than the glumes, bearded and supported at the base by one or two fascicles of hairs. *Seed* loose, covered by the paleæ.

Triandria. Digynia.

1. *T. laxiflorum* Mich. : culm erect; leaves setaceous, and with the sheaths somewhat scabrous; panicle diffuse, capillary, with trichotomous branches; glumes unequal.—*Agrostis laxa* Muhl.

HAB. Dry fields. Subarc. Amer. to Car. May, June. 24.—*Culm* 18 inches high. *Panicle* at length much spread and loose, pyramidal. *Thin Grass.*

2. *T. scabrum* Muhl. : culm geniculate at the base, assurgent, branched; leaves linear-lanceolate, flat, striate, scabrous; sheaths mostly smooth; panicle verticillate and divaricate; glumes unequal; paleæ ovate, acute, 3-nerved.—*Agrostis scabra* Willd.

HAB. Woods. N. S. Aug., Sept. 24.—*Culm* 12—18 inches high. *Panicle* diffuse, much branched.

3. *T. elatum* Pursh: culm erect, firm; leaves narrow-linear, flat, scabrous; sheaths smooth; panicle verticillate, a little spreading; glumes nearly equal.

HAB. Sandy swamps. N. J. Aug. 24.—Culm 3 feet high. Panicle exsert, purple.

4. *T. montanum* Torr.: culm caespitose, erect; leaves involute, filiform, and as well as the sheaths, scabrous; panicle capillary, loose, a little spreading; glumes equal.

HAB. Mountains. N. Y. July. 24.—Culm 8—12 inches high. Panicle elongated.

3. POLYPOGON. Desf.

Glume 2-valved, 1-flowered; valves nearly equal, obtuse at the end, with a long bristle. Paleæ shorter than the glume; the lower one entire, with a short straight tender bristle, (sometimes awnless); upper one bifid, toothed.—Panicle contracted like a spike.

Triandria. Digynia.

P. racemosus Nutt.: panicle dense, conglomerate, interrupted; bristles of the glume scabrous; paleæ unarmed, hairy at the base; culm branched.—*Agrostis racemosa* Mich.—*A. setosa* Muhl.

HAB. Bogs. N. S. W. to Miss. Aug., Sept. 24.—Culm 3—4 feet high, compressed. Leaves scabrous and somewhat glaucous, flat. Panicle 2 inches long, many-flowered, interrupted below.

4. TRICHOCHLOA. De Cand.

Glume 2-valved, 1-flowered, very minute. Paleæ much larger than the glume, naked at base; lower one convolute at the base, terminating in a long awn not articulated.

Triandria. Digynia.

T. capillaris De Cand.: leaves convolute-filiform, smooth; panicle diffuse, capillary, very slender; pedicels longer than the awns; awns 3—4 times the length of the flower.—*Stipa sericea* Mich. Pursh.—*Agrostis sericea* Muhl. Ell.

HAB. Sandy fields. Mass. to Car. June, July. 24.—Culms caespitose, 2 feet high, very slender. Panicle 8—10 inches long, glossy and purple.

5. CINNA. Linn.

Glume naked, beardless, 2-valved, compressed, nearly equal. Paleæ 2, nearly equal, compressed, shortly stipitate, naked at the base; lower one inclosing the upper, with a short awn near the summit. Stamen 1. Monandria. Monogynia.

C. arundinacea Willd.: panicle large, capillary, loose; leaves broad-linear; culm smooth.—*Agrostis cinna* Pursh.

HAB. Wet grounds. Can. to Car. Aug. 2f.—*Culm* 2–5 feet high. *Leaves* a foot or more in length. *Panicle* terminal, 8–10 inches long, with the flowers green.

6. MUHLENBERGIA. Schreb.

Glume 2-valved; *valves* very minute, fringed. *Paleæ* much longer than the glume, ovate, obliquely truncate, gibbous; the lower one terminating in a slender bristle.—*Panicle* nearly simple. *Triandria. Digynia.*

1. *M. diffusa* Schreb.: culm diffuse (decumbent); leaves linear-lanceolate; panicle branched, appressed; awns as long as the paleæ.

HAB. Fields. N. Y. to Car. July. 2f.—*Culm* 18 inches long, compressed, geniculate-branched. *Leaves* scabrous. *Panicles* lateral and terminal, very slender; bristle purple.

2. *M. erecta* Schreb.: culm erect, simple, and with the leaves pubescent; panicle loose; paleæ 2, with a very long awn.—*Brachyelytrum aristatum* Beauv. Torr.

HAB. Rocky hills. Can. to Car. July. 2f.—*Root* creeping. *Culm* 2–3 feet high, erect, slender. *Leaves* pubescent. *Panicle* contracted. Lower *palea* with a very long bristle.

7. ALOPECURUS. Linn.

Glume 2-valved, 1-flowered; *valves* somewhat equal, connate, distinct. *Paleæ* united into a bladder-like glume, cleft on one side below the middle, generally bearded. *Styles* often connate.—*Panicle* spiked, cylindric. *Triandria. Digynia.*

1. *A. pratensis* Linn.: culm erect, smooth; panicle subspiked, cylindric, obtuse, thick; glumes ciliate, connate below the middle, as long as the paleæ.

HAB. Fields and pastures. N. S. May–Aug. 2f.—*Culm* simple, 2–4 feet high. *Leaves* flat, smooth. *Spike* 1 1-2 inches long. Introduced. *Fox-tail Grass.*

2. *A. geniculatus* Linn.: culm ascending, geniculate; panicle spiked, cylindrical, obtuse; glumes connate at base, obtuse, hairy on the back and margin; paleæ truncate; styles free.

b. aristulatus Torr.: awn scarcely exerted.—*A. aristulatus* Mich. *A. subaristatus* Pursh.

HAB. Wet meadows. Can. and N. S. N. to Arc. Amer.; rare. June. 2f.—*Culm* 12–18 inches high, knee-jointed and rooting below, terete, smooth. *Leaves* linear-lanceolate, very acute. *Spike* nearly 2 inches long. Var. *a.* has the awn as long again as the paleæ.

8. PHLEUM. Linn.

Glume 2-valved, much longer than the paleæ; *valves* equal, boat-shaped, rostrate or mucronate. *Paleæ* 2, included in

the glume, boat-shaped, awnless, truncate.—Panicle spiked, dense, cylindric. *Triandria. Digynia.*

P. pratense Linn. : spike cylindric ; glumes truncate, mucronate, with a ciliate keel ; awn shorter than the glume ; culm erect.

HAB. Fields. N. S. June—Aug. 2f.—Culm 2—3 feet high, simple, smooth. Leaves flat. Spike long, cylindric, green. Introduced. Herds Grass or Cat's-tail Grass.

9. PHALARIS. Linn.

Glume 2-valved, 1-flowered ; valves nearly equal,*membranaceous, gibbous on the back, carinate. Paleæ 2, coriaceous, hairy at the base, shorter than the glume. Rudiments opposite, sessile, resembling valves. Scales collateral.—Flowers generally in compound, ovate or elongated spikes.

Triandria. Digynia.

1. *P. americana* Ell. : panicle oblong, spiked ; glumes boat-shaped, serrulate ; paleæ unequal ; rudiments hairy.—*P. arundinacea* Mich.—*Calamagrostis colorata* Nutt.

HAB. Swamps. Can. to Car. July, Aug. 2f.—Culm 2—5 feet high, erect, a little branching. Panicle 2—4 inches long, at length a little spreading. American Canary Grass.

2. *P. canariensis* Linn. : panicle subspiked, ovate ; glumes boat-shaped, entire at the apex ; rudiments smooth.

HAB. In pastures, &c. July. ☉.—Culm a foot and half high. Leaves broad-linear. Glumes nearly twice the length of the paleæ. Introduced. Canary Grass.

10. CRYPISIS. Au.

Glume 2-valved, 1-flowered, compressed, unequal. Paleæ 2, unequal, longer than the glume. Stamens 2—3. Seed loose, covered by the paleæ.—Flowers in an oblong spike.

Triandria. Digynia.

C. virginica Nutt. : spike oblong-cylindrical, thick and lobed ; culm procumbent and geniculate ; leaves at length involute, rigid, pungent.

HAB. Sandy fields. Near Philadelphia. Aug.—Oct. ☉.—Culm 6—12 inches long, much branched from the base. Leaves at first flat, striate, hairy on the upper surface. Spikes lateral and terminal.

DIV. II. PANICEÆ. Inflorescence spiked or paniced. Spikelets either solitary, in pairs, or several together, one or more usually 2-flowered, one of the flowers being sterile or unisexual. Glumes usually of a thinner texture than the paleæ, which are more or less cartilaginous, the lower one half enfolding the upper, and either beardless or occasionally bearded ; neither of them with a keel.

11. MILIUM. Linn.

Glume 2-valved, naked, beardless. *Paleæ* 2, oblong, concave, shorter than the glume, awnless. *Seed* coated with the indurated paleæ.—Flowers panicled. *Triandria. Digynia.*

1. *M. effusum* Linn.: panicle diffuse, compound; branches horizontal; glumes ovate, very obtuse; paleæ awnless, smooth and shining; leaves broad-linear.

HAB. Woods. Can. and N. S. July. 2f.—Culm 5—8 feet high, simple, smooth. *Panicle* oblong, 8 inches in length.

Common Millet-grass.

2. *M. amphicarpon* Pursh: leaves linear-lanceolate, hairy, ciliate; panicle simple, contracted, bearing perfect flowers; fertile flowers in solitary elongated radical scapes, at length subterraneous.—*M. ciliatum* Muhl.

HAB. Sandy swamps. N. J. Aug., Sept. 2f.—Culms numerous, 1—2 feet high, assurgent. *Panicle* appressed. *Glumes* acuminate.—This species is well figured by Pursh.

3. *M. pungens* Torr.: culm erect; leaves lanceolate, very short, pungent, at length involute; panicle contracted; branches generally in pairs, 2-flowered; flowers awnless, ovate; paleæ hairy.

HAB. Rocky hills. N. S. May. 2f.—Culm slender, 12—18 inches high, simple, rigid. *Radical leaves* 6—8 inches long, about a line wide, acute and pungent. *Panicle* oblong, few-flowered. *Style* 2-parted.

Dwarf Millet-grass.

12. PIPTATHERUM. Beauv.

Glume membranaceous. *Paleæ* cartilaginous, elliptical, shorter than the glume; lower one awned at the tip. *Scales* ovate, entire.—Flowers panicled. *Triandria. Digynia.*

P. nigrum Torr.: panicle simple; flowers racemose, ovate-lanceolate; paleæ black, hairy; awn as long again as the glume.—*Oryzopsis melanocarpa* Muhl.—*Mitium racemosum* Smith. Big.

HAB. Rocky hills. N. S. Aug. 2f.—Culm 2—3 feet high. *Leaves* long, linear-lanceolate. *Panicle* few-flowered, flexuous. Lower paleæ with a very long awn. *Seed* black.

Black-seeded Millet-grass.

13. PANICUM. Linn.

Glume 2-valved; valves unequal, the lower one very small. *Florets* dissimilar, the lower one abortive, or antheriferous. *Paleæ* concave, equal, beardless. *Seed* coated with the hardened paleæ.—Panicle loose and scattered.

Triandria. Digynia.

* *Flowers in dense racemes.*

1. *P. crus-galli* Linn.: racemes alternate and in pairs, compound;

rachis 5-angled; glumes terminating in hispid bristles; sheaths glabrous.

HAB. Near cultivated grounds. Aug., Sept. ☉.—*Culm* 2—4 feet high, terete. *Panicle* dense, at length spreading, sometimes coloured.—It varies with unarmed glumes. Introduced.

Cocksfoot-grass.

2. *P. hispidum* Muhl.: panicle compound, nodding; racemes alternate; glumes terminating in hispid bristles; sheaths hispid.

HAB. Salt marshes. N. Y. to Car. Sept., Oct. ☉.—*Culm* 3—4 feet high, thick. *Panicle* dense. *Flowers* always awned.—Resembles No. 1, but may be distinguished by its hispid sheaths.

3. *P. clandestinum* Linn.: culm with short axillary branches; leaves broad-lanceolate, cordate at the base; sheaths hispid, enclosing the short panicles; abortive floret neutral, 2-valved; upper valve obtuse.—*P. latifolium* var. *clandestinum* Pursh.

HAB. Moist woods. N. Y. to Car. July, Aug. 2f.—*Culm* 2—3 feet high, erect and rigid. *Panicles* terminal and lateral, concealed in the sheaths of the leaves.

4. *P. pedunculatum* Torr.: culm dichotomous; leaves broad-lanceolate, slightly hairy above, attenuate; sheaths hispid and papillose; panicle long-pedunculate, compound, smooth; spikelets ovate, smooth; abortive floret 2-valved; upper valve half the length of the lower.

HAB. Moist woods. N. Y. July. 2f.—*Culm* 3—4 feet high, much branched above. *Panicle* terminal, spreading, on a peduncle.

5. *P. latifolium* Linn.: culm mostly simple, bearded at the joints; leaves oblong-lanceolate, smooth, or with the sheaths somewhat pubescent; panicle terminal, a little exsert, simple, pubescent; spikelets oblong-ovate; abortive floret antheriferous, 2-valved; upper valves sub-herbaceous, nearly as long as the lower, acute.

HAB. Woods. Can. to Car. W. to Ill. June, July. 2f.—*Culm* a foot high. *Panicle* 2 inches long, with pubescent downy branches.

6. *P. scoparium* Lam.: whole plant softly villous; leaves lanceolate; panicle erect, compound, setaceous, much branched; spikelets turgid, ovate, pubescent.

HAB. N. J. to Car. 2f.—*Culm* 2 feet high, mostly simple. *Flowers* larger than in any of our species.—Scarcely differs from the preceding.

7. *P. nervosum* Muhl.: culm simple; nodes smooth; leaves broad-lanceolate, smooth, a little ciliate on the margin; panicle much branched, smooth, many-flowered; spikelets oblong; abortive floret antheriferous, with the upper valve sub-herbaceous, shorter than the lower.

HAB. Bogs. N. Y. to Car. July. 2f.—*Culm* 3—4 feet high. *Panicle* 4—5 inches long, decomposed.—Allied to *P. latifolium*,

but is taller and has the joints smooth and the panicle compound and smooth.

8. *P. macrocarpon* Torr. : culm erect, simple ; leaves linear-lanceolate, erect, a little hairy beneath ; joints naked ; sheaths hispid ; panicle rather compound, smooth ; spikelets ovate-globose ; abortive floret neutral.

HAB. Banks of streams. N. J. and Mass. July. 2f.—Culm 3 feet high, straight. Panicle with few spreading flexuous branches.

9. *P. pubescens* Lam. : erect, much branched, leafy, softly pubescent ; leaves lanceolate, ciliate ; panicle small, few-flowered, free ; spikelets subglobose-ovate, pubescent.

HAB. Shady woods. Penn. to Car. July. 2f.—Culm 18 inches high ; nodes and leaves hairy. Panicle with horizontal branches.

10. *P. involutum* Torr. : culm cespitose, simple, or a little branched at the base ; leaves erect, somewhat rigid, very narrow, at length involute ; panicle simple, few-flowered ; florets acuminate ; upper valve of the neutral floret very small.

HAB. Near Deerfield, Mass. Torr. 2f.—Culm a foot high. Panicle terminal, (rarely lateral,) consisting of a few flexuous branches.

11. *P. depauperatum* Muhl. : culm cespitose, hairy at the joints ; leaves linear-lanceolate, smooth or hairy ; sheaths pubescent ; panicle few-flowered ; branches in pairs, one of them 2-flowered, the other 1-flowered.

HAB. Sandy soils. N. Y. and N. J. May, June. 2f.—Culm a foot high, jointed. Panicle terminal, erect, with tortuous branches.

12. *P. dichotomum* Linn. : culm much branched and dichotomous above ; branches fasciculate ; leaves very numerous, lanceolate, smooth ; panicle simple, capillary, lax ; abortive floret neuter ; upper valve minute, bifid.

HAB. Dry woods. N. Y. to Car. July—Sept. 2f.—Culm erect, sometimes decumbent, 8—12 or more inches long. Panicles lateral and terminal, with spreading branches.—Dr. Torrey describes three varieties of this species.

13. *P. nitidum* Lam. : culm slender, simple, erect, smooth ; sheaths bearded at the throat ; leaves very few, broad-linear ; panicle capillary, rather crowded, compound, remote, smooth ; spikelets minute, obtuse, ovate, slightly pubescent ; lower glume very small.

a. *ciliatum* : culm hairy ; leaves linear-lanceate, (the lowest one broader) sparingly hirsute, ciliate on the margin ; panicle with the branches and flowers pubescent.

b. *ramulosum* : culm more branched ; panicle contracted ; branches smooth.

c. *gracile* : culm very slender, smooth ; leaves very narrow, and with the sheaths smooth ; panicle nearly simple, few-flowered, smooth ; upper valve of the abortive floret minute, entire. ?

d. pilosum : culm simple, very hairy ; lower leaves approximate and broad-lanceolate ; upper ones linear, rather rigid, somewhat hairy on the upper surface, ciliate at the base ; sheaths villose and minutely papillose ; panicle subcontracted ; branches virgate and with the flowers pubescent.

e. glabrum : smooth on every part, except the base of the leaves, nearly simple ; lower leaves short, approximate, subcartilaginous ; panicle branched, almost verticillate ; spikelets large ; upper valve of the abortive floret entire.—*P. nitidum* Schceintz.

f. barbatum : culm simple, smooth ; nodes hairy, leaves linear-lanceolate ; sheaths smooth, except on the margin ; flowers minutely pubescent.—*P. discolor* Muhl.

HAB. Meadows, woods and pine barrens. N. S. June, July. 2f.—Culm 18 inches to 2 feet high. Panicle compound.—A very variable grass—at least if Torrey's account of it be correct.

14. *P. agrostoides* Muhl. : culm compressed, smooth, erect ; leaves very long ; panicles lateral and terminal, pyramidal, spreading ; branches bearing racemes ; spikelets appressed ; abortive floret neutral ; valves nearly equal.—*P. elongatum* Pursh.

HAB. Wet meadows. N. Y. to Vir. July—Sept. 2f.—Culm 2—3 feet high, smooth at the joints. Panicle mostly dark purple.

15. *P. virgatum* Linn. : whole plant very smooth ; panicle diffuse, very large ; flowers acuminate ; valve of the abortive floret nearly equal.

HAB. Near salt water. N. Y. to Car. July, Aug. 2f.—Culm 3—4 feet high. Panicle virgate, at length spreading.

16. *P. anceps* Mich. : culm compressed ; sheaths ancipitous, pilose ; panicle with nearly simple branches ; spikelets subracemose, much acuminate ; abortive floret neuter, with the upper valve bifid.

HAB. Wet woods. Penn. to Car. 2f.—Culm 3 feet high. Leaves very long. Panicle pyramidal.

17. *P. rectum* R. & S. : panicle solitary, shorter than the terminal leaf ; branches simple, flexuous ; spikelets alternate, peduncled, obovate, turgid ; glumes striate, acute ; leaves linear, straight, tapering to a sharp point, striate and scabrous above, hairy beneath ; sheaths with very long hairs.—*P. strictum* Pursh.

HAB. Banks of streams. Penn. July. ☉. Pursh.

18. *P. verrucosum* Muhl : culm slender, decumbent and geniculate, branched below, and with the leaves smooth ; panicle much spreading, few-flowered ; flowers verrucose ; abortive floret 1-valved.

HAB. Swamps. N. Y. to Geor. Aug., Sept. 2f.—Culm a foot high ; nodes smooth and inflated. Leaves lance-linear, spreading. Panicles lateral and terminal, spreading.

19. *P. proliferum* Lam. : culm assurgent, geniculate at base, very smooth ; panicles terminal and axillary, smooth ; spikelets racemose ; abortive floret 1-valved.—*P. dichotomiflorum* Mich.—*P. geniculatum* Muhl.

HAB. Wet meadows. Penn. to Geor. Sept. 21.—Plant very smooth. *Culm* 2—4 feet long, succulent. *Leaves* a foot or more long. *Panicles* large and pyramidal.

20. *P. capillare* Linn.: culm nearly simple; sheaths very hairy; panicle large, capillary, expanding, loose; spikelets on long peduncles, acuminate, smooth; abortive floret 1-valved.

a. sylvaticum Torr.: culm branched at the base, very slender; leaves linear.

HAB. Cultivated grounds. Can. to Flor. Var. *a.* Dry woods. N. Y. Aug., Sept. 21.—*Culm* 1—2 feet high, erect; sheaths hispid. *Panicle* large and pyramidal, reflexed when old.

21. *P. longifolium* Torr.: whole plant very smooth; culm compressed, erect, simple, slender; leaves very long and narrow; panicle simple, elongated, racemose; spikelets acuminate; abortive floret neutral, 2-valved.

HAB. Pine barrens. N. J. Sept., Oct. 21.—*Culm* 2 feet high. *Leaves* a foot or more long, very narrow. *Panicle* few-flowered.

14. SETARIA. *P. de Beauv.*

Has the same character as *Panicum*, except that the panicle is spiked. *Triandria. Digynia.*

1. *S. viridis* *P. de B.*: spike cylindrical; involucre of 4—10 fasciculate bristles, scabrous upward; spikelets geminate; perfect floret smooth; sheaths pubescent.—*Panicum viride* Linn.

HAB. Sandy fields. N. S. July, Aug. 21.—*Culm* 1 1-2 to 2 feet high, simple. *Involucre* longer than the flowers.

Wild Timothy.

2. *S. glauca* *P. de B.*: spike cylindrical; involucre of many fascicled bristles, scabrous upward; perfect floret transversely rugose.—*Panicum glaucum* Linn.

b. purpurascens Ell.: sheaths hairy; glumes and bristles of the involucre hairy.

HAB. Road sides, &c. N. S. July, Aug. 21.—*Culm* 2 feet high. *Spike* 3—4 inches long. Introduced. *Bottle Grass.*

3. *S. verticillata* *P. de B.*: spike subverticillate; bristles of the involucre 2, retrosely scabrous; spikelets solitary; paleæ of the perfect floret nearly smooth.—*Panicum verticillatum* Linn.

HAB. Sandy grounds. N. S. July. 21.—*Culm* 18 inches high. *Spike* 2 inches long. Introduced.

4. *S. italica* *P. de B.*: spike compound, interrupted at base, nodding; spikelets conglomerate; involucre many times longer than the flowers; rachis tomentose.—*Panicum italicum* Linn.

HAB. Ditches. N. J. to Car. July. 21.—*Culm* 4 feet high. *Panicle* 6—8 inches long.

15. ORTHOPOGON. *Brown.*

Spike compound. *Glume* 2-valved, nearly equal, 2-flowered; *valves* unequally awned. *Florets* dissimilar; outer one stamiferous or neuter, 1- or 2-valved; inner pistiliferous surrounding the seed. *Triandria. Digynia.*

O. echinatus Spreng.: spikes alternate, secund, simple; rachis triquetrous, smoothish; glumes nerved, muricate-hispid; leaves and sheaths smooth, striate.—*Panicum echinatum Willd.*

HAB. Penn. ♀.—Mr. Schweinitz informs me that a variety of this species occurs at Bethlehem, Penn.

16. DIGITARIA. *Haller.*

Inflorescence digitate or fascicled. *Spikelets* in pairs, on short bifid peduncles. *Glume* 2-valved, the lower very minute. *Lower floret* abortive, the paleæ membranous. *Upper floret* perfect, the paleæ subcoriaceous, hardened. *Seed* slightly furrowed. *Triandria. Digynia.*

1. *D. sanguinalis Scop.*: spikes digitate, erect, somewhat spreading; leaves and sheaths pilose; florets oblong, pubescent at the edge.—*Panicum sanguinale Linn. Big.*

HAB. Cultivated grounds. Can. to Car. Aug., Sept. ☉.—*Culm* 1—2 feet long, decumbent or assurgent. *Spikes* 4—6.

Orab Grass.

2. *D. glabra R. & S.*: spikes digitate, subalternate, (3—4) spreading; leaves and sheaths smooth; spikelets ovate, crowded; glume equal to the abortive floret, both hairy.—*D. ischaemum Muhl.*—*D. paspaloïdes Mich.*

HAB. Sandy fields. N. Y. to Vir. Aug., Sept. ☉.—*Culm* a foot long, mostly decumbent. *Spikes* mostly 3, about 2 inches long.

3. *D. serotina Mich.*: decumbent; leaves and sheaths very pubescent; spikes numerous, setaceous; spikelets all pedicellate; lower glume very minute.—*D. villosa Ell.*

HAB. Wet places. N. Y. *Muhl.* S. to Car. June—Aug. ☉.—*Culm* 12—18 inches long. *Spikes* 2—3 inches long.

4. *D. filiformis Ell.*: culm erect, filiform; leaves somewhat smooth; spikes 2—4, filiform, erect; spikelets in threes, all pedicellate; glumes 1-valved, as long as the abortive floret.—*D. pilosa Mich. ?*

HAB. Sandy fields. N. J. to Geor. Aug. ☉.—*Culm* 1—2 feet high. *Spikes* mostly 2, alternate, long.

17. PASPALUM. *Linn.*

Glume 2-valved, 1-flowered, membranaceous, equal, closely pressed to the two plano-convex paleæ. *Seed* coated with the paleæ.—Flowers in unilateral spikes. *Triandria. Digynia.*

1. *P. ciliatifolium* Mich.: culm decumbent; leaves hairy and ciliate; sheaths hairy; spikes 1—2, rather lax, indistinctly 3-rowed.—*P. ciliatum* Pursh.

HAB. Sandy fields. N. Y. to Car. Sept. 24.—Culm 18 inches long, slender and simple. Spike mostly solitary, terminal.

2. *P. setaceum* Mich.: culm erect; leaves and sheaths villous; spike mostly solitary; flowers in 2 rows.—*P. pubescens* Muhl.

HAB. Sandy fields. N. Y. to Car. July. ☉.—Culm 1—2 feet high. Spike on a long terminal peduncle.

3. *P. laeve* Mich.: erect, very smooth; leaves short, very smooth; spikes numerous, (3—6,) alternate; flowers 2-rowed, smooth.

HAB. Dry meadows. Penn. to Car. Aug. 24.—Culm 1—2 feet high. Spikes spreading.

4. *P. stoloniferum* Bosc: spikes in elongated racemes, somewhat verticillate, spreading; flowers serrulate-ciliate, transversely rugose; leaves short, subcordate; culm prostrate at base.

HAB. Cedar swamps. N. J. Aug. 24.—Culm 2 feet long, branched, geniculate, stoloniferous. Spikes very numerous, (30—50.)

18. CENCHRUS. Linn.

Involucre 1—3-flowered, many-parted, bristly without, finally hardened. *Glume* 2-flowered, 2-valved; outer valve smallest. *Florets* dissimilar; the outer sterile, the other perfect. *Scales* none. *Triandria. Monogynia.*

1. *C. echinatus* Linn.: spikelets approximated; involucre 10-parted, villous.

HAB. Sandy soils. N. J. to Geor. Aug. ☉.—Culm erect or procumbent, 1—2 feet long. Spikes consisting of 6—10 heads.

2. *C. tribuloides* Linn.: spike with alternate spikelets; involucre entire, spiny.

HAB. Sandy soils. N. J. to Flor. July, Aug. ☉.—Culm 18 inches high.—Dr. Torrey thinks it a variety of the preceding.

19. TRIPSACUM. Linn.

Monoecious. STERILE FL. *Glume* 2-flowered; outer one sterile; inner neuter. *Corol* a membranous glume. FERTILE FL. *Glume* 1-flowered, surrounded by a 1-leaved involucre, perforated near the base. *Corol* a 2-valved glume. *Styles* 2. *Seed* 1. *Monoecia. Triandria.*

T. dactyloides Linn.: spikes 3, clustered; sterile florets near the top, fertile at the base.

b. monostachyon Torr.: spike solitary.—*T. monostachyon* Willd.

HAB. Meadows. N. Y. to Car. W. to Ill. Aug. 24.—Culm 5—7 feet high. Spikes large.

DIV. III. STIPACEÆ. *Inflorescence paniced. Spikelets solitary, 1-flowered. Glumes membranous, the lower paleæ coriaceous, bearded, enfolding the upper, which has not two keels.*

20. STIPA. Linn.

Glume 2-valved, membranous. Palea 2, coriaceous, shorter than the glume; the lower involute, with a long beard at the apex; upper entire. Awn jointed at the base, deciduous. Seed furrowed.—Panicle almost simple, lax.

Triandria. Digynia.

S. avenacea Linn. : leaves setaceous; panicle spreading, somewhat secund; branches mostly in pairs, a little divided; glume as long as the seed; awn naked.—*S. barbata* Mich.

HAB. Sandy soils. N. Y. to Car. June. 2f.—Culm 2 feet high.

Panicle 4—6 inches long, becoming diffuse. Feather Grass.

DIV. IV. BROMEÆ. *Inflorescence paniced. Spikelets solitary, 2 or many-flowered. Glumes with a keel. Palea of nearly the same texture as the glumes, the lower carinate or concave, always bearded, the upper with two keels.*

21. ARISTIDA. Linn.

Glume 2-valved, membranous, unequal. Palea 2, pedicellate, subcylindric; lower one coriaceous, involute, 3-awned at the tip; upper one very minute or obsolete. Scales collateral.—Panicles contracted.

Triandria. Digynia.

1. *A. dichotoma* Mich. : caespitose; culm dichotomous; flowers racemose-spiked; lateral awns very short, the intermediate one contorted.

HAB. Gravelly soil. N. Y. to Car. July. ♂. ?—Culms 12—18 inches high, very slender. Racemes on clavate peduncles.

2. *A. stricta* Mich. : culm and leaves straight, erect; leaves pubescent; raceme long, somewhat spiked, crowded; awns twice as long as the paleæ, spreading.

HAB. Rocky places. Penn. to Car. July. 2f.—Culm 2—3 feet high, branching at base. Panicle long, with the flowers not crowded.

3. *A. purpurascens* Poir. : culm filiform, erect, simple; leaves very narrow, flat; flowers in a long spiked panicle; awns nearly equal, twice the length of the paleæ, divaricate.—*A. racemosa* Muhl.

HAB. Sandy woods. N. S. Sept. 2f.—Culm 2—3 feet high. Panicle elongated, loose.

22. CALAMAGROSTIS. Roth.

Glume 2-valved, 1-flowered; valves acute or acuminate.

Paleæ 2, mostly shorter than the glume, surrounded with a pubescence or long wool at the base; the dorsal one with or without an awn.

Triandria. Digynia.

1. *C. mexicana* Nutt. : panicle oblong, loose; glumes scabrous, pubescent, as long as the paleæ, which are awned on the back; hairs at the base equalling the paleæ; culm and leaves smooth.—*Arundo canadensis* Mich. Torr.—*A. cinnoides* Muhl.—*A. agrostoides* Pursh.

HAB. Bogs. N. S. W. to Mich. Aug. 2f.—Culm 3 feet or more high. Leaves long and narrow. Panicle erect, much divided.

2. *C. colorata* Nutt. : panicle oblong, spiked; glumes boat-shaped, serrulate; paleæ unequal; rudiments hairy.—*Phalaris americana* Ell. Torr.—*P. arundinacea* Mich. Muhl.

HAB. Bogs. Can. to Car. Aug. 2f.—Culm 3—5 feet high. Panicle at length somewhat spreading.

3. *C. canadensis* Nutt. : panicle somewhat spiked, conglomerate; glumes a little longer than the paleæ, carinate; paleæ longer than the pappus, awned a little below the tip.—*Agrostis coarctata* Torr.—*A. glauca* Muhl.

HAB. Bogs. N. S. N. to Subarc. Amer. July, Aug. 2f.—Culm 3—5 feet high. Panicle stiffly erect.

4. *C. brevipilis* Beck : panicle diffuse, capillary; glumes unequal, shorter than the paleæ, bearded at the base; paleæ equal, awnless, hairy; pappus very short.—*Arundo brevipilis* Torr.—*A. epigeios* Muhl.

HAB. Sandy swamps. N. Y. and N. J. Sept. 2f.—Culm 3—4 feet high. Panicle pyramidal, loose.

5. *C. halleriana* De Cand. : panicle loose, glumes acuminate; dorsal awn and hairs longer than the paleæ, but shorter than the glume.—*Arundo pseudo-phragmites* Schrad.

HAB. N. S. Schweinitz.

6. *C. confinis* Spreng. : panicle lanceolate, spreading; glumes nervy, acuminate; hairs equalling the paleæ; dorsal awn geniculate, longer than the glumes.—*Arundo confinis* Willd. Pursh.

HAB. Bethlehem. Penn. Schweinitz.

23. PSAMMA. *P. de Beauv.*

Glumes 2-valved, awnless. *Paleæ* 2, shorter than the glumes, surrounded with hairs at the base. *Scales* linear-lanceolate, longer than the seed. *Style* 3-parted. *Stigmas* 3.—Panicle spiked.

Triandria. Trigynia.

P. arenaria P. de B. : panicle spiked; glumes acute; paleæ three times as long as the pappus; leaves involute.—*Arundo arenaria* Linn.

HAB. Sandy shores. Can. and N. S. Aug. 2f.—Roots long, creeping. Culm 2—3 feet high. Panicle white.

24. ANTHOXANTHUM. Linn.

Glumes 2-valved, 3-flowered. *Lateral florets* imperfect, with one palea bearded; intermediate florets perfect, much shorter than the lateral ones. *Paleæ* obtuse, beardless. *Stamens* 2. *Seed* free.—Panicle contracted.

Diandria. Digynia.

A. odoratum Linn.: spike ovate-oblong; flowers pubescent, subpeduncled, shorter than their awns.

HAB. Moist meadows. N. Y. to Car. June—Aug. 2f.—Culm a foot high, assurgent. Flowers in a terminal spike or spiked panicle. Introduced. Sweet-scented Vernal Grass.

25. AIRA. Linn.

Glumes 2- rarely 3-flowered, beardless, 2-valved, equal to the florets or shorter; one of the florets peduncled. *Paleæ* 2, equal, enclosing the seed when ripe; outer one usually awned.—Panicle compound. *Triandria. Digynia.*

1. *A. flexuosa* Linn.: panicle spreading, trichotomous; branches flexuous; glumes a little shorter than the paleæ and about the length of the awn; leaves setaceous; culm nearly naked.

HAB. Shady woods. Can. to Car. W. to Mich. June. 2f.—Culm 1—2 feet high. Panicle capillary, lax, the branches whorled or dichotomous.

2. *A. cespitosa* Linn.: panicle diffuse; paleæ about the length of the glumes; awn short, straight; leaves flat.

HAB. Swamps. Can. and N. S. July. 2f.—Culms cespitose, 18 inches high. Panicle capillary, with the branches somewhat whorled.

3. *A. aristulata* Torr.: panicle capillary, spreading; branches verticillate and flexuous; glumes 2-flowered, shorter than the paleæ; upper floret pedicellate; lower paleæ truncate, lacinate, with an awn a little below the middle scarcely exerted.

HAB. Shores of lakes. N. Y. Aug. 2f.—Culm 2 feet high. Panicle oblong or pyramidal.

4. *A. pumila* Pursh: panicle small, fastigiate, few-flowered; pedicels short; paleæ awnless, obtuse, twice the length of the glumes, with membranous margins; leaves flat, smooth; culm erect, scarcely longer than the leaves.

HAB. Clay grounds. Penn. Pursh. June. 2f.—Culms scarcely an inch high, growing in tufts.

26. AVENA. Linn.

Glumes membranous, 2—7-flowered, longer than the florets. Lower palea bilacinate, or with the upper bifid-toothed,

sometimes eroded, with a twisted awn on the back. *Scales* ovate. *Seed* coated, furrowed.—Panicle compound, loose.

Triandria. Digynia.

1. *A. præcox* P. de B. : panicle in a dense raceme ; florets as long as the glumes ; awn exserted ; leaves setaceous.—*Aira præcox* Linn.

HAB. Sandy fields. N. J. to Vir. June. ☉.—Culm 3—4 feet high, cespitose. Panicle oblong.

2. *A. elatior* Linn. : panicle equal, nodding ; awn as long again as the floret ; culm geniculate, smooth ; root nodose.—*Arrhenatherum avenaceum* P. de B. Torr.

HAB. Fields. N. S. ; rare. June. 2f.—Culm 3 feet high. Panicle loose, with the branches in pairs or ternate.

27. TRISETUM. Pers.

Lower *palea* with 2 bristles and a tender flexuous beard above the middle of its back. *Scale* lanceolate.—(Other characters of *Avena*.)

Triandria. Digynia.

1. *T. pennsylvanicum* P. de B. : panicle attenuated ; awn twice as long as the florets ; seed villous.—*Avena pennsylvanica* Linn.—*Arrhenatherum pennsylvanicum* Torr.

HAB. Fields. N. Eng. to Car. July. ☉.—Culm erect, smooth. Panicle with short branches.

2. *T. palustre* Torr. : panicle contracted, nodding, somewhat verticillate ; glumes 2—3-flowered ; florets smooth, acuminate ; lower one awnless ; lower palea of the upper floret bicuspidate, awned below the tip.—*Avena palustris* Mich.—*Aira pallens* Muhl.

HAB. Wet meadows. N. Y. to Flor. May—July. 2f.—Culm 1—2 feet high. Panicle with the lower branches in fives.

3. *T. purpurascens* Torr. : panicle very simple, somewhat racemose, few-flowered ; glumes 3-flowered, very unequal, entire ; culm and leaves smooth ; stipule very short, truncate.—*Avena striata* Mich. ?

HAB. Mountain meadows. Can. and N. S. 2f.—Culm 2 feet high, leafy. Leaves narrow-linear. Panicle 4—6 inches long. Glumes purplish, smooth.

4. *T. subspicatum* Brown : panicle subspiked ; awn at length deflexed, exceeding the glume.—*T. aroides* P. de B. Torr.—*Aira subspicata* Linn.

HAB. Rocks and mountains. Little Falls, N. Y. Gray. White Mountains, N. H. Rocky Mountains. Arc. Amer. June. 2f.—Culm a foot high. Leaves narrow, 2—4 inches long. Panicle 2 inches long, somewhat spiked.—First noticed as an American plant by Dr. Torrey, in *Ann. N. Y. Lyc.* i. 154. The specimens which I have received from Dr. Gray, agree exactly with those from the White Mountains, collected by Dr. Pickering, but they are nearly three times the size of my specimen of *A. subspicata*, from Switzerland ; the panicle also is more loose and the glumes of a lighter colour.

28. *HOLCUS*. *Linn.*

Glumes 2-valved, 2-flowered, nearly equal. *Paleæ* 2. *Florets* dissimilar, polygamous, one awned, the other awnless, without any imperfect one between them.—Panicles contracted. *Triandria. Digynia.*

H. lanatus *Linn.*: perfect floret inferior and awnless; sterile one with a curved awn included in the glume; root fibrous.

HAB. Wet meadows. N. S. W. to Mich. July. 2l.—*Culm* 18 inches high. *Panicle* oblong, contracted, whitish.

Soft Grass.

29. *HIEROCHLOA*. *Gmel.*

Glumes 2-valved, 3-flowered, scarious. *Lateral florets* antheriferous, triandrous. *Central floret* perfect, diandrous, (rarely triandrous.)—Panicle contracted, ovate.

Triandria. Digynia.

1. *H. borealis* *R. & S.*: panicle subsecund, a little spreading; peduncles smooth; florets unarmed; lower palea ciliate on the margin; root creeping.—*Holcus odoratus* *Linn. Mich.*—*H. fragrans* *Pursh.*

HAB. Wet meadows. Can. to Vir. N. to Subarc. Amer. May. 2l.—*Culm* 18 inches high. *Panicle* few-flowered, pyramidal, purple and brown.—Sweet-scented.

2. *H. alpina* *R. & S.*: panicle ovate, contracted; spikelets compressed, longer than the branches; glumes lanceolate, almost nerveless; lateral florets triandrous; one of them with an awn about as long as the valves; sides almost smooth; margin ciliate.

HAB. Summit of White Hills, N. H. *Big. N.* to Arc. Amer. June. 2l.—*Culm* 6—8 inches high. *Flowers* larger than in the preceding, purple.

30. *URALEPSIS*. *Nutt.*

Glumes 2—3-flowered, much shorter than the florets, which are stipitate and distinct. *Paleæ* 2, very unequal, distinctly villous on the margins; the lower one tricuspidate; the central cusp produced into a short bristle; upper palea concave on the back and incurved. *Seed* gibbous, coated.—Panicle simple, racemose. *Triandria. Digynia.*

U. aristulata *Nutt.*: lateral panicles concealed in the sheaths of the leaves; terminal ones partly exsert; glume 3-flowered; bristle of the palea as long as the lateral cusps.

HAB. Sea coast and sandy fields. N. Y. and Penn. Aug. ☉. —*Culms* cespitose, procumbent at base. *Flowers* axillary and terminal, purple.

31. ARUNDO. Linn.

Glume naked, beardless, 2-valved, unequal. *Paleæ* membranous, surrounded with bristles at the base; lower one mucronate or slightly awned. *Seed* enclosed in the paleæ.

Triandria. Digynia.

A. phragmites Willd. : glumes about 5-flowered, a little shorter than the florets.—*Phragmites communis* Trin. Torr.

HAB. Near ponds. N. Y. to Geor. Aug. 24.—*Culm* 6—12 feet high, with numerous joints. *Panicle* very large, loose, somewhat nodding. At a distance resembles Indian corn.

Reed Grass.

32. DANTHONIA. De Cand.

Glumes 2—5 flowered, longer than the florets, cuspidate. *Paleæ* bearded at the base; lower one 2-toothed, with a twisted awn between the teeth; upper one obtuse, entire.—*Panicle* spiked.

Triandria. Digynia.

D. spicata P. de B. : panicle simple, appressed; spikelets 7—9, about 7-flowered; lower palea hairy; leaves subulate; lower sheaths hairy at the throat.—*Avena spicata* Linn.

HAB. Woods and fields. Can. to Car. W. to Mich. June—Aug. 24.—*Culms* cespitose at base, 1—2 feet high. *Panicle* spiked.

33. FESTUCA. Linn.

Glume 2-valved, many-flowered; valves unequal. *Paleæ* 2, lanceolate; outer one acuminate or awned at the extremity.—*Panicle* generally compound.

Triandria. Digynia.

1. *F. myurus* Linn. : panicle slender, crowded, equal; spikelets about 4-flowered; florets subulate, awned, hairy, monandrous.

HAB. Dry fields. N. J. to Car. June. ☉.—*Culm* 6—8 inches high, geniculate at base. *Awn* twice as long as the palea.

2. *F. tenella* Willd. : panicle spiked, very simple, secund; spikelets mostly 9-flowered; bristles shorter than the subulate florets; culm filiform, angular above; leaves setaceous.—*S. bromoides* Mich.

HAB. Sandy fields. N. Y. to Car. June. ☉.—*Culms* numerous, 8—12 inches high. *Panicle* racemose or spiked.

3. *F. duriuscula* Linn. : panicle secund, oblong, contracted; spikelets 5—6-flowered, nearly terete; florets terminated by short bristles; root fibrous.

HAB. Fields and pastures. N. Y. to Car. June. 24.—*Culm* 12—18 inches high. *Panicle* with geminate branches. Introduced.

4. *F. rubra* Linn. : panicle secund, erect, spreading; spikelets some-

what terete; florets longer than the bristle at their tips; leaves pubescent above; root creeping.

HAB. Dry soils. Penn. Muhl. June. 2f.—Culm 18 inches high, erect. Leaves very long. Panicle contracted.

5. *F. elatior* Linn.: panicle spreading, much branched, loose; spikelets ovate-lanceolate, 4—5-flowered; florets slightly armed; leaves flat; root creeping.

HAB. Wet meadows. N. S. June. 2f.—Culm 3—4 feet high. Panicle 6—8 inches long, nodding when old.

6. *F. pratensis* Huds.: panicle spreading, branched; spikelets linear, many-flowered, acute; leaves linear; root fibrous.

HAB. Meadows and fields. N. S. June, July. 2f.—Culm 1—2 feet high, erect. Panicle subsecund, nearly simple. Introduced.

7. *F. nutans* Willd.: panicle, diffuse, at length nodding; branches long, geminate, naked below; spikelets ovate, 3—5-flowered; florets somewhat obtuse, unarmed, nerveless.

HAB. Woods and hills. N. J. to Car. W. to Mich. June. 2f.—Culm 3 feet high. Panicle few-flowered, loose.

8. *F. fascicularis* Willd.: culm procumbent, geniculate; panicle subsecund; branches straight, spike-like; spikelets appressed, 8—10-flowered; florets armed; leaves very long.—*F. polystachia* Mich.—*F. procumbens* Muhl.

HAB. Brackish meadows. N. Y. and N. J. Aug. 3.—Culm a foot long, branched from the base. Panicle erect, with spreading branches.

9. *F. clandestina* Muhl.: panicle partly concealed in the sheaths; branches solitary, simple; spikelets 10-flowered; florets awned.

HAB. N. Y. Muhl.—Culm about 8 inches high. Leaves linear. Spikelets sessile and peduncled. Lower palea with a short bristle.

10. *F. diandra* Mich.: panicle close; branches simple, scattered; spikelets linear, 2—5-flowered; flowers acuminate, diandrous; stem very rough.—*Diarrhena americana* P. de B. Torr.

HAB. Banks of the Ohio. Raf. 2f.—Culm erect, nearly naked, slender. Panicle racemose.

11. *F. glabra* Spreng.: panicle spreading, with the branches secund; spikelets awnless, 6-flowered; leaves somewhat rigid and with the sheaths very smooth.

HAB. Long Island. N. Y. Spreng. Schweinitz.

34. CERATOCHLOA. P. de Beauv.

Glumes 12—18-flowered; valves shorter than the florets. Palea bifid-toothed; the lower one mucronate between the teeth. Seed coated, furrowed, 3-horned.—Panicle nearly

simple. Spikelets compressed. Florets imbricated in 2 rows. *Triandria. Digynia.*

C. unioides P. de B.: panicle nodding, spreading; spikelets oblong-lanceolate, compressed, 6—8-flowered; florets acuminate, unarmed; sheaths bearded at the throat, the lower one hairy; root fibrous.—*Festuca unioides* Willd.

HAB. Fertile soils. Penn. to Car. July. ☉ or 24.—Culm 18 inches high. Panicle small; branches in pairs.

35. DACTYLIS. Linn.

Spikelets heaped into a unilateral head. Glume 2-valved, many-flowered; valves unequal, the larger one keeled. Paleæ 2, lanceolate, awnless; lower one emarginate, mucronate; upper bifid, toothed.—Panicle compound.

Triandria. Digynia.

D. glomerata Linn.: panicle secund, glomerate; leaves carinate.

HAB. Fields and meadows. N. Y. to Car. June. 24.—Culm 2—3 feet high. Panicle secund. Spikelets in thick ovate clusters on the branches. Orchard-grass.

36. TRICUSPIS. P. de Beauv.

Spikelets terete, tumid, many-flowered. Glume 5—7-flowered, carinate, shorter than the florets. Lower palea bifid-toothed, between the teeth and on each side mucronate; upper one truncate, almost emarginate. Seed 2-horned.—Panicle compound.

Triandria. Digynia.

T. seslerioides Torr.: panicle expanding and flexuous; spikelets all pedunculate, about 6-flowered, lanceolate; lower palea ovate, 5-toothed.—*Poa seslerioides* Mich. Muhl.—*Windsoria poeiformis* Nutt.

HAB. Sandy fields. N. S. S. to Car. Aug. 24.—Culm 4—5 feet high, erect, smooth. Panicle very large, at length spreading and pendulous. Red-top.

37. KOELERIA. Pers.

Spikelets compressed. Glume 2—3-flowered, beardless, 2-valved; valves shorter than the lowest floret. Paleæ 2, the outer beardless or bearded under the point.—Panicle spiked.

Triandria. Digynia.

1. *K. pennsylvanica* De Cand.: leaves flat and with the sheaths softly pubescent; panicle oblong, slender, rather loose; glumes 2-flowered, nearly equal; the lower one oblong, obtuse, and slightly mucronate; upper palea scabrous.—*Aira mollis* Muhl.

HAB. Rocky woods. Penn. to Car. May, June. 24.—Culm 2 feet high, simple. Panicle long, with shining flowers.

2. *K. truncata* Torr. : leaves flat, smooth ; panicle oblong, racemose ; glumes 2-flowered, with a third abortive floret, unequal ; lower glume a little scabrous, obtuse ; paleæ smooth.—*Aira truncata* Muhl.—*Holcus striatus* Linn.

b. major Torr. : panicle large, a little spreading ; leaves broad-linear, very long.

HAB. Dry woods. N. Y. to Car. June. 2f.—Culm 2 feet high, slender. Panicle loose, racemose.

38. BROMUS. Linn.

Glume 3—20-flowered. Valves shorter than the florets, which are imbricated in 2 rows. Lower palea cordate, emarginate below the end, sometimes torn in two, with a straight beard. Scales ovate, smooth. *Triandria. Digynia.*

1. *B. secalinus* Linn. : panicle spreading, a little branched ; spikelets oblong-ovate, compressed ; florets about 10, distinct, rather remote, longer than the flexuous bristles ; leaves somewhat hairy.

HAB. Cultivated grounds. Penn. to Car. June. ♂.—Culm 2—3 feet high ; nodes swollen, pubescent. Panicle oblong, erect, branched. Introduced. Chess or Cheat.

2. *B. mollis* Linn. : panicle erect, contracted ; spikelets oblong-ovate, somewhat compressed, pubescent ; bristle straight, as long as the paleæ ; leaves very soft pubescent.

HAB. Fields and pastures. N. Y. and Penn. June. ♂.—Culm 2 feet high, pubescent. Panicle 3—4 inches long ; spikelets 5—10-flowered.

3. *B. purgans* Linn. : panicle nodding ; spikelets lanceolate, terete ; florets hairy ; bristle straight ; leaves smooth ; sheaths hairy.

HAB. Wet meadows. Can. to Car. N. to Arc. Amer. ; rare. Aug. 2f.—Culm 2—4 feet high. Panicle diffuse with scabrous and flexuous branches.

4. *B. ciliatus* Linn. : panicle nodding ; spikelets oblong, terete, 8—10-flowered ; glumes acute, (not mucronate,) ciliate ; paleæ hairy ; margin villosely ciliate ; bristle short.

HAB. River banks. Penn. to Car. June. 2f.—Culm 3 feet high, hairy at the joints. Panicle nodding, with 2 bracts at base.

5. *B. pubescens* Muhl. : panicle at length nodding ; spikelets lanceolate, terete ; florets pubescent ; leaves and lower sheaths pubescent.

HAB. Woods. Penn. Muhl. June. 2f.—Culm 4 feet high, erect. Panicle scabrous with 2—5 branches.

39. POA. Linn.

Spikelets oblong or linear, compressed, many-flowered, (3—20.) Glumes shorter than the florets. Paleæ sometimes

woolly at the base, the upper bifid-toothed. *Scales* smooth.
—Panicle more or less branching or scattered.

Triandria. Digynia.

1. *P. annua* Linn. : panicle subsecund, divaricate ; spikelets ovate-oblong, 5-flowered ; florets free ; culm oblique, compressed ; root fibrous.

HAB. Fields, &c. Can. to Car. April—Aug. ☉.—*Culms* cespitose, 6—8 inches long, very smooth. *Panicle* crowded, at length spreading. *Meadow Grass.*

2. *P. fasciculata* Torr. : panicle expanding ; branches straight, fasciculate, crowded ; spikelets oblong, 3-flowered ; florets free ; glumes minute, unequal ; culm oblique, terete ; root fasciculate.

HAB. Salt marshes. N. Y. Aug. 24.—*Culm* 1—2 feet high. *Panicle* appressed.

3. *P. dentata* Torr. : panicle loose, somewhat spreading ; branches capillary, virgate ; spikelets lanceolate, 5-flowered ; glumes free ; florets unequal ; inferior glume obtuse, 3-nerved ; lower palea 5-nerved, 5-toothed at the apex when old.

HAB. Swamps. N. S. June, July. 24.—*Root* creeping. *Culm* 3 feet high. *Panicle* large, nodding when young.

4. *P. aquatica* var. *americana* Torr. : panicle erect, semi-verticillate, diffuse ; branches flexuous, smooth ; spikelets linear, 6—8-flowered ; florets ovate, obtuse, free ; leaves broad-linear, and as well as the sheaths, smooth.—*P. aquatica* Pursh.

HAB. Wet meadows. Can. and N. S. Aug. 24.—*Culm* 4—5 feet high, thick and leafy. *Panicle* very large, purple.

5. *P. maritima* Huds. : panicle branched, somewhat crowded ; spikelets about 5-flowered, terete ; florets rather obtuse, indistinctly 5-nerved ; root creeping.

HAB. Salt marshes near Boston, Mass. Big. June. 24.—*Culm* a foot high. *Panicle* erect, with the branches in pairs and flexuous.

6. *P. brevifolia* Muhl. : panicle loose ; branches in pairs, horizontal ; glumes 3—4-flowered ; paleæ pubescent ; leaves very short ; stipules, acuminate.

HAB. Woods. Penn. Muhl. April. 24.—*Culm* 2 feet high, oblique and somewhat angular. *Panicle* loose, flexuous.

7. *P. pungens* Torr. : culm compressed ; leaves very short, cuspidate ; panicle somewhat simple, spreading ; spikelets ovate, 3—4-flowered ; florets webbed, rather obtuse, obscurely 5-nerved.—*P. flexuosa* Muhl.

HAB. Rocky woods. Penn. April. 24.—*Culm* 18 inches high, subancipitous. *Panicle* small, semiverticillate.

8. *P. pratensis* Linn. : panicle diffuse ; upper leaves much shorter

than the smooth sheaths ; florets acute, 5-nerved, webbed at the base ; stipule short, truncate ; root creeping.

HAB. Meadows. Penn. to Car. May—July. 2f.—Culm 2—3 feet high. *Panicle* pyramidal, spreading. Introduced.

9. *P. viridis* Muhl. : leaves flat, linear, abruptly acute ; panicle somewhat crowded ; spikes ovate, acute, 4-flowered.

HAB. Meadows. Penn. to Car. July. 2f.—Culm erect, 3 feet high, oblique at base. *Panicle* diffuse, with 3 or 4 branches at each joint.—Differs from the preceding in the compression and almost pungent acuteness of the glumes and paleæ, (Nutt.) but is perhaps only a variety. *Green-grass.*

10. *P. parviflora* Pursh : panicle diffuse, capillary ; spikes small, generally 3-flowered ; florets rather obtuse, striate, caducous ; leaves distichous, flat.

HAB. Shady woods. N. Y. to Car. July. 2f.—Culm decumbent 12—18 inches high, somewhat compressed. *Leaves* very smooth. *Florets* 1—4.

11. *P. conferta* Ell. : panicles terminal and axillary, erect, compressed, with the florets clustered ; spikelets 8-flowered, smooth.—*P. glomerata* Walt.

HAB. Penn. Schuacinitz. S. to Car. 2f.—Culm erect, geniculate, 2—3 feet high. *Leaves* smooth, flat, serrulate on the margin. *Panicles* 4—8 inches long.

12. *P. trivialis* Linn. : panicle equal, diffuse ; spikelets oblong-ovate, about 3-flowered ; florets webbed at the base, 5-nerved ; culm and sheaths roughish ; stipule oblong ; root creeping.—*P. stolonifera* Muhl.

HAB. Wet meadows. N. S. June—Aug. 2f.—Culm 2—3 feet high. *Panicle* large, pyramidal, whorled.

13. *P. compressa* Linn. : panicle contracted, somewhat secund ; spikelets oblong, 3—6-flowered ; florets webbed ; glumes nearly equal ; culm oblique, compressed ; root creeping.

b. sylvestris Torr. : panicle loose, spreading ; spikelets 2—3-flowered ; culm slender, nearly erect.

HAB. Fields and woods. N. S. June, July. 2f.—Root creeping. Culm procumbent or geniculate. *Panicle* almost spiked.

Blue-grass.

14. *P. serotina* Ehrh. : panicle elongated, diffuse, at length somewhat secund ; spikelets ovate-lanceolate, 2—3-flowered ; florets a little webbed at the base, yellow at the tip, obscurely 5-nerved ; root creeping.—*P. palustris* Muhl.

HAB. Wet meadows. N. S. June. 2f.—Culm 2—3 feet high, erect. *Panicle* much branched. *Red-top.*

15. *P. nemoralis* Linn. : panicle attenuated, weak ; branches flexuous ; spikelets ovate, about 3-flowered ; florets loose, slightly webbed, acute, obsoletely nerved ; stipule almost wanting.

HAB. Woods. N. S. July. 2f.—Culm 2 feet high. *Panicle* with capillary branches.

16. *P. nervata* Willd. : panicle equal, diffuse ; branches weak, and at length pendulous ; spikelets 5-flowered ; florets free, conspicuously 7-nerved, obtuse.—*P. striata* Mich.—*Briza canadensis* Nutt.

HAB. Wet meadows. N. S. June. 2f.—Culm 3—4 feet high. Panicle large, with ovate spikelets.

17. *P. elongata* Torr. : panicle elongated, racemose ; branches solitary, appressed ; spikelets ovate, obtuse, tumid, 3-flowered ; florets free ; stipules almost wanting.

HAB. Wet meadows. N. S. July. 2f.—Culm 3 feet high. Panicle 8—10 inches long, nodding.

18. *P. obtusa* Muhl. : panicle ovate, contracted ; spikelets ovate, tumid, 5—7-flowered ; florets free ; glumes scarious ; paleæ ovate, smooth, obtuse ; lower one indistinctly 7-nerved ; leaves as long as the culm, and with the sheaths smooth.

HAB. Swamps. N. S. Aug., Sept. 2f.—Culm 3—4 feet high. Panicle dense, many-flowered.

19. *P. canadensis* Torr. : panicle large, effuse ; spikelets semi-verticillate, flexuous, at length pendulous ; spikelets ovate, tumid, 5—8-flowered ; florets free ; lower palea somewhat acute, 7-nerved ; upper one very obtuse ; stamens 2.—*Briza canadensis* Mich.

HAB. Swamps. Can. and N. S. July, Aug. 2f.—Culm 3—4 feet high. Panicle large, with the branches at length spreading.

20. *P. capillaris* Linn. : panicle very large, loose, expanding, capillary ; spikelets 3-flowered, ovate, acute ; florets free ; culm branched at the base ; leaves hairy.

HAB. Sandy fields. N. Y. to Car. Aug. ☉.—Culm a foot or more high. Panicle large, pyramidal, much branched.

21. *P. hirsuta* Mich. : culm erect, compressed, simple ; sheaths hairy ; panicle very large, capillary ; branches expanding, at length reflexed, bearded in the axils ; spikelets oblong, about 5-flowered ; paleæ ciliate on the margin.

b. spectabilis Torr. : spikelets linear, 10—15-flowered.—*P. spectabilis* Pursh.

HAB. Sandy fields. N. S. S. to Geor. July, Aug. 2f.—Culm 18 inches high. Panicle a foot long, much branched, purplish.—Var. *b.* is taller.

22. *P. pectinacea* Mich. : culm cespitose, oblique ; leaves hairy at the base ; panicle capillary, expanding, pyramidal, hairy in the axils ; spikelets linear, 5—9-flowered ; florets free, acute ; upper palea persistent.—*P. pilosa* Muhl.—*P. tenella* Pursh.

HAB. Sandy fields. N. Y. to Car. July, Aug. ☉.—Culm 8—12 inches long, geniculate at base. Panicle large, loose, purplish.

23. *P. reptans* Mich. : dioecious ; culm branched, creeping ; panicle fascicled ; spikelets linear-lanceolate, 12—20-flowered ; florets acuminate.

HAB. Swamps. N. Y. to Car. July, Aug. ☉.—*Culm* 6—8 inches long, rooting at the joints. *Panicle* 1—2 inches long, with the spikelets compressed.

24. *P. eragrostis* Linn. : panicle equal, spreading, the lower branches hairy in the axils; spikelets linear-lanceolate, 9—15-flowered; florets obtuse; root fibrous.—*P. obtusa* Nutt.—*Briza eragrostis* Muhl.

HAB. Sandy fields, &c. N. Y. to Car. July, Aug. ☉.—*Culm* 12—18 inches long, geniculate and branching at base. *Panicle* pyramidal; branches short, flexuous.

40. GLYCERIA. Brown.

Spikelets slender. *Glume* 5—7-flowered; *valves* 2, truncate, with transparent membranous edges, shorter than the florets. *Lower palea* eroded or many-toothed, embracing the upper, which is bifid-toothed. *Scales* connate. *Seed* furrowed.—*Panicle* nearly simple. *Triandria. Digynia.*

1. *G. fluitans* Brown : panicle secund, slightly branched; spikelets linear-terete, appressed, 8—12-flowered; florets very obtuse, 7-nerved; leaves long, flat.—*Festuca fluitans* Linn.

HAB. Wet grounds. N. S. W. to Mich. June, July. 2f.—*Root* creeping. *Culm* 3—5 feet high, compressed or ancipitous. *Panicle* nearly a foot long.

2. *G. acutiflora* Torr. : panicle simple, elongated, appressed; spikelets linear-terete, 4—6-flowered; florets attenuated, acute, indistinctly nerved; leaves short, erect.—*Festuca brevifolia* Muhl.

HAB. Overflowed meadows. N. S. June. 2f.—*Culm* 18 inches high. *Panicle* long and slender, nodding.—Dr. Gray has found it in Ontario county, N. Y.

41. UNIOLA. Linn.

Spikelets compressed. *Florets* imbricated in 2 rows, the lower only abortive. *Glume* 3—20-flowered, shorter than the florets. *Lower palea* boat-shaped at the end, abruptly cut off and mucronate between the lobes; the upper subulate, somewhat bifid-toothed. *Scales* emarginate. *Seed* with 2 horns.—*Panicle* compound, loose. *Triandria. Digynia.*

1. *U. latifolia* Mich. : leaves broad and flat; panicle loose, nodding; spikelets on long peduncles; florets somewhat falcate, monandrous; the lowest one abortive.

HAB. Mountains. Penn. to Geor. Aug. 2f.—*Culm* 2—3 feet high, somewhat branching. *Panicle* a foot long, loose.

2. *U. gracilis* Mich. : panicle elongated, racemose, appressed; spikelets 3-flowered; florets spreading; straight, monandrous; the lowest one abortive.—*Holcus laxus* Linn.

HAB. Sandy swamps. N. Y. to Car. Aug. 2f.—*Culm* 3—4

feet high, slender, leafy. *Panicle* long, slender, with short remote branches.

3. *U. spicata* Linn. : panicle spiked, straight; leaves involute, distichous, spreading; spikelets 5—9-flowered; florets triandrous.—*Festuca distichophylla* Mich.

HAB. Salt marshes. N. J. to Car. Aug., Sept. 2f.—*Root* creeping. *Culm* 18 inches high, branched at base, leafy. *Panicle* contracted into a dense spike.

42. BRIZA. Linn.

Spikelets cordate-ovate, many-flowered. *Glume* shorter than the florets, which are imbricate in two rows. *Paleæ* ventricose; lower one cordate at base, embracing the upper, which is nearly round and much shorter. *Seed* beaked.—*Panicle* compound, loose, with pendulous branches.

Triandria. Digynia.

B. media Linn. : panicle erect; spikelets at length cordate, about 7-flowered; glume smaller than the florets.

HAB. Near Boston; naturalized. Big. Penn. Muhl. May. 2f.
—*Culm* 18 inches high, naked above. *Panicle* few-flowered; branches purple. *Quaking Grass.*

43. MELICA. Linn.

Glume unequal, 2—5-flowered, membranous, nearly as long as the florets, of which the upper are incomplete and abortive. *Scales* truncate, fimbriate. *Seed* loose, not furrowed.—*Panicle* simple or compound.

Triandria. Digynia.

M. speciosa Muhl. : smooth; panicle loose, erect, few-flowered; branches simple; florets obtuse.—*M. glabra* Mich.

HAB. Mountains. Penn. to Car. June. 2f.—*Culm* 3—4 feet high. *Panicle* subsecund, with solitary branches. *Melic Grass.*

DIV. V. CHLORIDÆ. *Inflorescence* spiked. *Spikelets* solitary, seldom many-flowered, with the upper flower abortive and differently formed. *Glumes* with a keel, not opposite. *Lower paleæ* generally bearded, seldom beardless, the upper with two keels.

44. CYNODON. Rich.

Spikelets 1-sided, in a simple row. *Glumes* membranous, persistent, shorter than the florets and only embracing them at the base. *Fertile floret* with the upper *palea* bifid-toothed. *Rudiment* minute, pedicellate. *Scales* truncate. *Seed* loose, not furrowed.—*Spike* digitate, with filiform spikelets.

Triandria. Digynia.

C. dactylon Pers. : culm creeping; spikes digitate, (4—5,) spreading; keel of the glume scabrous; leaves hairy on the margin and towards the base; sheaths hairy.—*Digitaria dactylon Ell. Muhl.*

HAB. Low grounds. Penn. to Car. Aug. 21.—Culm prostrate, a foot or more long. Leaves narrow, somewhat distichous.

Bermuda Grass.

45. ATHEROPOGON. Muhl.

Spikes in a unilateral raceme. Glume 2-valved, membranous, 2-flowered; lower one setiform. PERFECT FL. Palea 2; lower one 3-toothed, or 3-bristled; upper bifid. ABORTIVE FL. Palea 2—3-bristled, pedicellate.

Triandria. Digynia.

A. apludoides Muhl. : spikes racemose, distant, pendulous; perfect floret with the lower palea tricuspidate; lateral bristles in the abortive floret half the length of the terminal one.—*Chloris curtispindula Mich.*

HAB. Rocky hills. N. J. and Penn. W. to Rocky Mountains.

Aug. 21.—Culm 18 inches high, geniculate at base, assurgent. Spikes very numerous, secund.—Well figured by Dr. Darlington in his *Flora Cestrica*.

46. ELEUSINE. Gert.

Glume 5—7-flowered; valves obtuse, unequal. Palea obtuse, membranous, upper one bifid-toothed. Scales truncate, fimbriate. Seed enclosed in a separate membrane, broadly and deeply furrowed.—Spikes digitate, 1-sided.

Triandria. Digynia.

E. indica Lam. : spikes straight, erect, in pairs or quaternate; rachis linear; spikelets lanceolate, about 5-flowered; culm compressed, declined.—*Cynosurus indica Linn.*

HAB. Cultivated grounds. N. Y. to Car. July—Nov. 21.—Culm 1—2 feet high, decumbent. Spikes mostly in pairs.

Wire Grass.

DIV. VI. CEREALÆ. Inflorescence spiked. Spikelets solitary, in pairs, or several together, 1- or many-flowered. Glumes opposite, equal. Lower palea bearded or beardless, upper with two keels.

47. HORDEUM. Linn.

Spikelets 3 at each joint of the rachis, 1-flowered, all perfect, or the lateral ones abortive. Glumes 2, subulate. Palea 2, the lower bearded. Scales 2. Stigmas feathery. Seed coated.—Habit similar to *Elymus*. Triandria. Digynia.

H. jubatum Linn.: lateral florets abortive, neuter; bristles of the glume and paleæ 6 times as long as the flowers.

HAB. Marshes near Boston. Big. N. to Subarc. Amer. June.
♂.—Culm 2 feet high, simple, slender. Spikes 2 inches long.

Squirrel-tail Grass.

48. SECALE. Linn.

Spikelets in each tooth of the rachis solitary, 2—3-flowered; the 2 lower florets fertile, sessile, opposite; the upper abortive. *Glumes* subulate, opposite, entire, shorter than the florets. *Lower palea* entire, with a very long bristle; upper bifid-toothed. *Scales* obovate, hairy. *Seed* coated, furrowed.

Triandria. Digynia.

S. cereale Linn.: glumes and bristles scabrous-ciliate; paleæ smooth.

HAB. Old fields. June. ♂ or ♀.—Culm 3—4 feet high. Spike 4—6 inches long. Lower palea terminating in a long scabrous bristle.

Rye.

49. ELYMUS. Linn.

Spikelets 2 or more at each joint of the rachis, 3—9-flowered. *Glume* 2-valved, nearly equal, rarely (as in *E. hystrix*), absent or nearly so. *Lower palea* entire, with a bristle which is sometimes very short; upper somewhat bifid-toothed. *Scales* ovate, hairy. *Seed* furrowed.—Spike simple.

Triandria. Digynia.

1. *E. virginicus* Linn.: spike erect, coarctate; spikelets in pairs, 2—3-flowered; florets smooth; glumes lanceolate, nerved.

HAB. River banks. N. J. to Car. W. to Mich. July, Aug. 2f.—Culm 3—4 feet high, smooth: Spike thick and stiffly erect.

Lime Grass.

2. *E. canadensis* Linn.: spike nodding at the extremity, patulous; spikelets 3—5-flowered; florets hairy; glumes linear-lanceolate.

b. glaucifolius Torr.: leaves glaucous.—*E. glaucifolius* Willd.

HAB. River banks. N. S. N. to Subarc. Amer. Aug. 2f.—Root creeping. Culm 3—4 feet high. Spike 6 inches long, pendulous at the extremity.

3. *E. villosus* Muhl.: spike a little nodding at the extremity, patulous; rachis and florets hispid-pilose; spikelets geminate, 2—3-flowered; glumes linear, pilose-ciliate, 2-nerved, shorter than the florets.

HAB. Hills. N. J. to Vir. July. 2f.—Culm 2—3 feet high. Spike 3 inches long, at length incurved at the extremity.

4. *E. hystrix* Linn.: spike erect; spikelets diverging; glumes none.

HAB. Rocky hills. N. Y. to Car. July. 2f.—Culm 3 feet high. Spike 6 inches long. Leaves often glaucous.

5. *E. striatus* Willd.: spike erect; spikelets 2-flowered, awned, his-

pid, in pairs; glumes linear, nerved, awned, nearly as long as the spikelets; leaves and sheaths smooth.

HAB. Shady woods. Penn. and Virg. *Pursh & Schweinitz.*

June. *¶*.—*Culm* erect, 8 inches high, striate. *Leaves* lanceolate, acuminate, scabrous above. *Spike* erect, somewhat spreading, with the rachis pubescent.

50. TRITICUM. *Linn.*

Spikelets sessile on the teeth of the rachis, many-flowered. *Glumes* 2-valved; *valves* nearly equal, beardless or with one beard enclosing the florets. *Paleæ* 2, one of them bearded from the end. *Seed* enclosed in the paleæ.—Flowers spiked.

Triandria. Digynia.

1. *T. æstivum* *Linn.*: spike parallel, compressed; glumes 4-flowered, ventricose; bristles generally much longer than the florets.

HAB. Fields—naturalized. June. *☉*.—*Culm* 3—4 feet high. *Spike* 3—6 inches long, with the rachis jointed. *Wheat.*

2. *T. repens* *Linn.*: spikelets oblong, 5-flowered; glumes subulate, many-nerved; florets acuminate; leaves flat; root creeping.—*Agropyron repens* *P. de B. Torr.*

HAB. Fields. N. S. W. to Miss. July. *¶*.—*Root* white, jointed, proliferous. *Culm* 2 feet high. *Spike* 3—4 inches long. —A troublesome weed. *Couch Grass. Quack.*

3. *T. caninum* *Linn.*: spikelets about 5-flowered, compressed; glumes 3-nerved, and as well as the florets armed with a bristle at the tip; root fibrous.—*Agropyron caninum* *R. & S. Torr.*

HAB. Del. Muhl. *¶*.—*Culm* 2—3 feet high. *Leaves* flat, smooth. *Spikelets* sometimes 6-flowered.

4. *T. cristatum* *Schreb.*: spike oblong, compressed; spikelets opposite, compressed, distichously imbricated; about 5-flowered, smoothish, spreading; florets subulate-awned; culm erect, smooth.—*Bromus cristatus* *Linn.*

HAB. Penn. *Schweinitz.*

51. LOLIUM. *Linn.*

Spikelets sessile, to the lowest a glume of 1-valve, to the uppermost of 2 opposite valves. *Lower palea* with a mucro or bristle at the end; upper membranous, bifid-toothed. *Scales* with 2 unequal teeth. *Seed* furrowed.—Spike compound.

Triandria. Digynia.

1. *L. perenne* *Linn.*: floret much longer than the glume, unarmed, linear-oblong, compressed; root perennial.

HAB. Meadows, &c. N. S. May, June. *¶*.—*Root* creeping. *Culm* 18 inches high, smooth. *Spike* 6 inches long, with the spikelets 7—9-flowered. *Darnel.*

2. *L. temulentum* Linn. : florets shorter than the glumes, as long as the bristle at their extremity ; root annual ; culm scabrous above.

HAB. N. Eng. and Penn. Muhl. July. ☉.—Culm 2 feet high. Spikelets much compressed.

52. SPARTINA. Schreb.

Flowers in unilateral spikes, imbricated in 2 rows. Glume 2-valved, compressed, unequal. Paleæ 2, awnless, unequal. Scales collateral. Triandria. Monogynia.

1. *S. cynosuroides* Willd. : spikes numerous (10—40,) pedunculate, panicled, spreading ; leaves broad, flat, at length convolute ; one glume with a short awn ; style 2-cleft at the summit.—*S. polystachya* Muhl. —*Limnætis cynosuroides* and *polystachya* Pursh.

HAB. Meadows. Can. to Car. Aug. 2f.—Culm 4—10 feet high. Leaves 1—3 feet long. Spikes linear, scattered.

Marsh Grass.

2. *S. juncea* Willd. : leaves distichous, convolute, spreading ; spikes few, (1—3,) pedunculate ; peduncles smooth ; paleæ rather obtuse ; styles 2.—*Limnætis juncea* Pursh.

HAB. River banks and marshes. Can. to Car. July, Aug. 2f.

—Root creeping, forming thick tufts. Culm 18 inches long, smooth. Spikes 3—5 ; lower one peduncled,

3. *S. glabra* Muhl. : leaves concave, erect ; spikes alternate, sessile, erect, appressed ; paleæ nearly smooth on the keel ; style cleft about half way down.

HAB. Marshes. N. Y. to Car. W. to Miss. Aug., Sept. 2f.

—Culm 3—5 feet high, smooth and somewhat succulent. Spikes 8—14, closely appressed to the rachis.

DIV VII. SACCHARINÆ. Inflorescence spiked or panicled, jointed. Spikelets generally in pairs, 1 or 2-flowered, the one sessile, the other peduncled and usually monoclinal. Glumes of a stouter texture than the paleæ, neither keeled nor opposite. Paleæ very delicate and membranous, not with a keel, the lower commonly bearded.

53. ANDROPOGON. Linn.

Flowers spiked. Spikelets in pairs, polygamous ; the lower one abortive, on a bearded pedicel. Glumes and paleæ often very minute or wanting, Upper spikelet sessile, 1-flowered, perfect. Glume subcoriaceous. Paleæ 2, shorter than the glume, membranous ; lower one generally awned.

Triandria. Digynia.

1. *A. scoparius* Mich. : spike simple, lateral and terminal, peduncu-

late, in pairs; rachis hairy; abortive floret neuter; valves awned.—*A. purpurascens* Muhl.

HAB. Rocky woods. N. Y. to Car. Aug. 24.—Culm 3 feet high, with lateral scattered branches, purplish. *Spikes* slender, flexuous. *Beard* Grass.

2. *A. virginicus* Linn.: culm compressed; superior leaves and sheaths smooth; spikes short, 2—3 from each sheath, partly concealed at the base; rachis subterete; abortive flower a mere pedicel without valves; perfect flower monandrous.—*A. dissitiflorum* Mich.

HAB. Swamps. Penn. to Vir. Sept. 24.—Culm 3 feet high, somewhat cespitose. *Spikes* partly concealed in a sheath.

3. *A. macrourus* Mich.: spikes fasciculate, in dense, lateral, and terminal fastigiate panicles; flowers monandrous; awn straight; abortive floret without valves.

HAB. Swamps. N. J. to Car. Sept., Oct. 24.—Culm 3 feet high, much branched towards the top. *Spikes* in large clustered panicles, partly concealed.

4. *A. furcatus* Muhl.: spikes digitate, generally in fours; abortive flowers staminiferous, awnless, resembling the perfect one, the awn of which is subcontorted.

HAB. Rocky banks of streams. N. Y. to Car. Aug., Sept. 24.—Culm 2—3 feet high. *Spikes* terminal, 3—4, 3 inches long.

5. *A. nutans* Linn.: panicle oblong, branched, nodding; spikelets by pairs; glume hairy, refuscent; awn contorted.—*A. avenaceum* Mich.

HAB. Sandy fields. N. S. to Car. Sept., Oct. 24.—Culm 3—6 feet high, simple. *Panicle* at first erect, at length nodding.

54. GYMNOPOGON. *P. de Beauv.*

Glume 2-valved, carinate, nearly equal, longer than the floret. *Paleæ* nearly equal; the lower one with a straight bristle a little below the tip. *Rudiment* aristiform.—Spike panicked. *Triandria. Digynia.*

G. racemosum P. de B.: culm ascending; leaves distichous, cordate-lanceolate, nerved, short; flowers appressed.—*Andropogon ambiguum* Mich. Muhl.—*Anthopogon lepturoides* Nutt.

HAB. Sandy fields. N. J. to Geor. Aug. 24.—Culm 2 feet high, assurgent. *Panicle* large, pyramidal, somewhat verticillate.

DIV. VIII. ORYZÆ. *Inflorescence* panicked. *Spikelets* solitary, 1-flowered. *Lower paleæ* cartilaginous, compressed, keeled. *Stamens* often more than 3.

55. LEERSIA. Linn.

Spikelets 1-flowered. *Glume* none, *Paleæ* 2, boardless,

keeled, compressed. *Scales* 2. *Stigmas* very finely cut.
Seed loose. *Triandria. Digynia.*

1. *L. virginica* Willd. : panicle simple ; the lower branches diffuse ; flowers appressed, monandrous, sparingly ciliate on the keel.

HAB. Wet woods. Can. to Car. Aug. 2f.—Culm 2—4 feet high, geniculate, erect or procumbent. *Panicle* terminal, much exsert ; branches few and solitary. *White Grass.*

2. *L. oryzoides* Swartz. : panicle diffuse, sheathed at the base ; flowers triandrous, spreading ; keel of the glumes conspicuously ciliate.

HAB. Ditches and swamps. N. Y. to Car. Aug., Sept. 2f.—Culm 3—5 feet high, erect or procumbent at base. *Panicle* much branched, spreading. *White Grass.*

56. ZIZANIA. Linn.

Monoecious. *Glume* none. STERILE FL. mixed with the fertile. *Paleæ* 2, subawned. FERTILE FL. *Paleæ* 2, cucullate and awned. *Style* 2-parted. *Seed* 1, enveloped in the plaited paleæ. *Monoecia. Hexandria.*

1. *Z. aquatica* Lamb. : panicle pyramidal, divaricate and sterile at the base, spiked and fertile above ; pedicels of the flower clavate ; awns long ; seed linear.—*Z. clavulosa* Mich.

HAB. In water. Can. to Flor. W. to Miss. Aug. 2f.—Culm 4—6 feet high, jointed. *Leaves* broad-linear. *Panicle* a foot or more in length, the lower branches spreading.

Wild Rice. Water Oats.

2. *Z. miliacea* Mich. : panicle effuse, pyramidal ; glumes with short awns ; sterile and fertile florets intermixed ; style 1 ; seed ovate, smooth ; leaves glaucous.

HAB. In water. Penn. to Car. Aug. 2f.—Culm erect, 6—10 feet high. *Leaves* very long, narrow. *Flowers* in a large terminal pyramidal panicle.

57. HYDROCHLOA. P. de Beauv.

Monoecious. *Glume* none. STERILE FL. *Paleæ* 2, awnless. FERTILE FL. *Paleæ* 2, awnless. *Stigmas* 2, very long. *Seed* 1, reniform. *Monoecia. Hexandria.*

H. fluitans P. de B.—*Zizania fluitans* Mich. Pursh.

HAB. In water. Can. and N. S. July. 2f.—Floating. Culm long, slender, branching. *Leaves* linear, flat. *Spike* solitary, axillary, setaceous, about 4-flowered.

58. ORYZOPZIS. Mich.

Glume 1-flowered, 2-valved ; *valves* membranaceous, nearly equal, loose, obovate, awnless. *Paleæ* 2, coriaceous, ey-

lindric-ovate, hairy at the base; the lower one awned at the tip. *Scales* linear-elongated.—Flowers panicled.

Triandria. Monogynia.

O. asperifolia Mich.: culm nearly naked; leaves erect, rigid, pungent at the point; flowers in a racemose panicle.

HAB. Mountain meadows. N. S. N. to Subarc. Amer. April, May. 2l.—Culm 18 inches high, purple at base. Panicle very simple, flexuous. *Mountain Rice.*

ORDER CXXXIX. CYPERACEÆ. Brown. Lind.

Flowers monoclinal or diclinal, consisting of imbricated solitary bracts, very rarely enclosing other opposite bracts at right angles with the first, called *glumes*. *Perianth* none, unless the glumes when present be so considered, or the hypogynous setæ. *Stamens* hypogynous, definite, 1—12; *anthers* fixed by their base, entire, 2-celled. *Ovary* 1-seeded, often surrounded by bristles called hypogynous setæ, probably constituting the rudiments of a perianth; *ovule* erect; *style* single, trifid or bifid; *stigmas* undivided, occasionally bifid. *Nut* crustaceous or bony. *Albumen* of the same figure as the seed; *embryo* lenticular, undivided, enclosed within the base of the albumen; *plumula* inconspicuous.

Roots fibrous. *Stems* very often without joints, 3-cornered or taper. *Leaves* with their sheaths entire.

DIV. I. True CYPERACEÆ.

1. CYPERUS. Linn.

Spikelets compressed, distinct. *Glumes* imbricated in two rows, nearly all enclosing flowers. *Style* deciduous. *Nut* 1, without bristles at its base. *Triandria. Monogynia.*

1. *C. tenellus* Linn.: culm capillary; spike solitary and in pairs; involucre 1-leaved.—*C. minimus* Thurb.

HAB. N. J. and Penn.—This minute species has been found in Monmouth county, N. J. by Mr. Z. Collins—on the Delaware, near Philadelphia, by Dr. Isaac Cleaver. See Bart. Fl. Phil. i. 26, and Nutt. Gen. i. 35.

2. *C. fasciculatus* Ell.: spikelets ovate-oblong, many-flowered, in terminal fascicles; involucre 2-leaved, and with the leaves linear and very narrow.

HAB. Shores of the Delaware. Schweinitz. S. to Geor.—Culm 6 inches high, 3-angled. Leaves 1—2, almost setaceous. Spikelets 5—7, sessile, many flowered.

3. *C. inflexus* Muhl. : umbel 2—3-rayed, or conglomerate and simple ; involucre 3-leaved, very long ; spikelets collected into ovate heads, oblong, 8-flowered ; glumes squarrose at the tip.—*C. uncinatus* Pursh.

HAB. Banks of streams. Ver. to Vir. Aug., Sept. ♂.—*Culm* 2—3 inches high, triquetrous. *Heads* consisting of many ovate spikes, yellowish.

4. *C. flavescens* Linn. : spikes linear-lanceolate, in fascicles of 3—4 ; glumes obtuse ; style 2-cleft ; seed lenticular ; involucre 3-leaved, longer than the spikes.

HAB. Wet soils. N. Y. to Car. Aug., Sept. 2f.—*Culm* 8—12 inches high. *Spikelets* 14—20-flowered, yellowish-green.

5. *C. nuttallii* Torr. : culm acutely triangular ; umbel radiate or nearly sessile, loose ; rays short ; involucre 4-leaved ; 2 of the leaves very long ; spikelets linear-lanceolate, compressed, acute ; stamens 2 ; style 2-cleft ; seed oblong, obtuse, compressed.

HAB. Salt marshes. N. S. Aug., Sept. 2f.—*Culms* cespitose, 5—12 inches high. *Spikelets* very acute, green and brown.

6. *C. diandrus* Torr. : culm slender, obtusely triangular ; umbel sessile, or 1—2-rayed ; involucre 3-leaved, 2 of the leaves much longer than the umbel ; spikelets lanceolate-oblong, much compressed, many-flowered (14—16 ;) glumes margined, rather acute, keeled ; stamens 2 ; style 2-cleft ; seed oval, compressed.

HAB. Salt marshes and wet grounds. N. S.—*Culm* 8—12 inches high, slender. *Umbel* resembling a small panicle.

7. *C. dentatus* Torr. : umbel compound, (6—10-rayed ;) involucre 3-leaved, longer than the umbel ; spikelets 3 on each ray, alternate, ovate, compressed, 8-flowered ; glumes acute, nervose, spreading at the points ; seed triquetrous.—*C. parviflorus* Muhl.

HAB. Swamps and marshes. N. S. Sept. 2f.—*Culm* 10—12 inches high. *Spikelets* much compressed, the tips of the glumes spreading.

8. *C. erythrorhizos* Muhl. : umbel decomposed ; involucrum 3—6-leaved, very long ; spikes alternate, linear, horizontal, about 12-flowered, nearly terete ; style 3-cleft ; seed triquetrous.

HAB. Banks of streams. N. Y. to Geor. Aug., Sept. 2f. ?—*Root* fibrous, red. *Culm* a foot high. *Partial umbel* nearly naked. *Spikelets* linear, at length nearly round.

9. *C. strigosus* Linn. : spikelets linear, compressed, acute, alternate ; glumes lanceolate, nervose ; umbel simple or compound ; involucre about 6-leaved, pubescent on the margin ; root globose.

HAB. Wet grounds. N. Y. to Car. Aug., Sept. 2f.—*Culm* 2—3 feet high. *Spikelets* scattered, many-flowered.

10. *C. tenuis* Muhl. : spikes lanceolate, acute, 10—17-flowered ; umbel simple ; involucre 3—4-leaved, longer than the rays ; root tuberous.

HAB. Penn. and Vir. Muhl.—*Culm* 8 inches high, slender. *Spikelets* lanceolate, many-flowered, yellow.

11. *C. phymatodes* Muhl. : umbel simple or decomposed ; involucre 3—9-leaved ; 3 of the leaves very long ; peduncles compressed ; spikelets distichous, linear, the lower one branched, about 15-flowered ; sides rather convex ; glumes oblong, obtuse ; radicles tuberosus at the extremity.—*C. tuberosus* Pursh.—*C. repens* Ell.

HAB. Moist grounds. N. Y. and Penn. Aug. 24.—*Root* creeping. *Culm* 12—18 inches high. *Leaves* radical. *Spikelets* linear-elongated, many flowered.

12. *C. compressus* Linn. : spikes digitate, somewhat by fours, lanceolate ; glumes mucronate, broad, membranaceous.

HAB. Low meadows. Penn. to Car. Pursh. July. 24.—*Culm* 3—8 inches high. *Spikelets* nearly sessile, many-flowered.

13. *C. virens* Mich. : culm acutely triangular ; umbels decomposed ; spikelets ovate-lanceolate, in compact heads ; involucre very long.

HAB. Meadows. Penn. to Geor. Sept. 24.—*Culm* 1—2 feet high. *Spikelets* many-flowered, laterally compressed into compact heads.

14. *C. mariscoides* Ell. : umbel simple, or with 1—2 rays ; spikelets collected into globose heads, linear, 7—8-flowered ; glumes loose, obtuse.—*Scirpus cyperiformis* Muhl.

HAB. Rocky grounds. Mass. to Car. W. to Miss. Aug. 24.—*Root* a solid bulb. *Culm* 8—10 inches high. *Spikelets* crowded into hard dense heads.

15. *C. odoratus* Linn. : spikelets corymbed, subulate, remote, distichous ; glumes somewhat distant ; smaller umbels spreading widely, about the length of their involucels.

HAB. Banks of rivers. Penn. to Flor. ; rare. Aug. 24. Pursh.

16. *C. flavicomis* Mich. : culm triquetrous ; umbel compound ; spikes linear-lanceolate, 7-flowered ; glumes obtuse ; involucre very long, reflexed.

HAB. Boggy woods. Penn. to Car. Pursh. July. 24.—*Culm* erect, smooth. *Spikes* distichous, oblong, compressed, yellow.

2. DULICHIMUM. Rich.

Spikes somewhat racemose, axillary ; *spikelets* linear-lanceolate, rather compressed. *Glumes* distichous, sheathing. *Style* very long, bifid ; base persistent. *Nut* with bristles at the base.

Triandria. Monogynia.

D. spathaceum Pers. : culm terete ; leaves spreading in three directions ; spikelets spreading.—*Schænus spathaceus* Linn.—*Scirpus spathaceus* Mich.

HAB. Swamps and ponds. Throughout the U. S. Aug. 24.—*Culm* 18 inches high, round below, triangular above. *Leaves* linear, flat. *Flowers* in subulate spikelets, forming axillary racemes.

3. KYLLINGIA. Linn.

Flowers distinct, disposed in a roundish, sessile, subimbricated spike. *Glumes* 2-valved, 1-flowered. *Paleæ* 2, longer than the glumes. *Triandria. Monogynia.*

K. monocephala Linn. : stem filiform, 3-angled; head globose, sessile; involucre 3-leaved, very long.

HAB. N. J. to Geor. June. 2f.—*Root* creeping, stoloniferous. *Culm* 3—12 inches high. *Head* always single.—Supposed to be distinct from the foreign plant.

DIV. II. SCIRPEÆ.

4. FIMBRISTYLIS. Vahl.

Spikelets imbricated in all directions, all fertile, at length caducous. *Style* bulbous at base, jointed, ciliate. *Stigmas* 2—3. *Seed* naked at base. *Triandria. Monogynia.*

1. *F. ferruginea* Vahl. : culm compressed, scabrous above; involucre unequally ciliate; spikes lanceolate, acute, nearly terete; glumes pubescent.—*F. puberulum* Vahl. Pursh.—*Scirpus ferrugineus* Linn. Muhl. Torr.

HAB. Wet meadows. N. Y. to Car. Aug. 2f.—*Culm* 2 inches to 2 feet high, varying with the soil. *Umbel* mostly simple, 3—4 rayed. *Style* 2-cleft, fimbriate. *Seed* naked at base.

2. *F. spadicea* Vahl. : culm compressed, nearly naked, umbel terminal; involucre rigid, 2 leaved, one of the leaves longer than the umbel; leaves subterete; spikes ovate-oblong, terete.—*Scirpus spadiceus* Linn. Muhl. Torr.

HAB. Salt marshes. N. J. to Car. Aug. 2f.—*Culms* caespitose, 2—3 feet high, compressed above. *Spikes* closely imbricate, brown. *Style* 2-cleft, distinctly fimbriate. *Seed* yellowish.

3. *F. coarctata* Schw. : culm filiform; umbel compound, crowded; spikes small, linear-lanceolate; involucre setaceous, with one of its leaves longer than the umbel; leaves filiform, concave on one side.—*Scirpus coarctatus* Ell.—*S. castaneus* Muhl.

HAB. Sandy soils. N. J. Schweinitz. S. to Car. Sept. 2f.—*Culm* filiform, a foot high. *Umbel* 3—4-rayed. *Glumes* with a short fringe on the margin. *Style* deeply 3-cleft.

4. *F. cylindrica* Vahl. : spikes cylindric, very obtuse; involucre about 1-leaved, rigid, as long as the simple umbel.

HAB. Quaker's Bridge, N. J. Schweinitz. 2f.

5. SCIRPUS. Linn.

Glumes imbricating the spike on all sides, one or two of the outer ones occasionally without flowers. *Seed* or *nut* naked, or with bristles at its base. *Triandria. Monogynia.*

* Seed with bristles or hypogynous setæ at the base.

† Spikes terminal, solitary.

1. *S. palustris* Linn. : culm terete, inflated ; spike oblong-lanceolate ; glumes somewhat obtuse ; seed roundish, punctate and rugose ; bristles scabrous.

HAB. Marshes and low meadows. N. Y. to Car. N. to Arc. Amer. June. 2f.—Culm 1—2 feet high, erect, leafless, with 3 sheaths at base. Spike sometimes oblique, the lower glumes larger. Club Rush.

2. *S. capitatus* Linn. : culm terete or somewhat compressed ; spike ovate, obtuse ; seed oval, compressed, smooth.

HAB. Bogs and meadows. N. Y. to Car. July, Aug. 2f.—Culms cespitose, erect, 8—18 inches high. Spike very obtuse, sometimes nearly globose. Glumes round. Bristles 6, as long as the glumes.

3. *S. tuberosus* Mich. : culm columnar, striate ; glumes very obtuse, loosely appressed ; nut somewhat 3-angled ; tubercle sagittate, larger than the nut.

HAB. Wet grounds. N. J. Schweinitz. S. to Car. July. 2f.—Culm 12 inches high, sheathed at base with 1 or 2 scales. Spike ovate-lanceolate. Bristles 6, as long as the tubercle.

4. *S. acicularis* Linn. : culm setaceous, quadrangular ; spike ovate, acute, 3—6-flowered ; glumes somewhat obtuse ; stamens 3 ; style bifid ; seed obovate.

HAB. Margins of ponds. N. Y. to Car. June, July. 2f.—Culm 3—6 inches long, cespitose. Spikes about 4-flowered. Bristles 4, rarely wanting.

5. *S. intermedius* Muhl. : culms cespitose, quadrangular, sulcate ; spike ovate-oblong, acute ; glumes rather acute ; stamens 3 ; style 2-cleft ; seed broad-obovate, compressed ; tubercle distinct.

HAB. Marshes and swamps. N. S. Sept. 2f.—Root creeping. Culms slender, 3—4 inches long. Spikes dark brown. Bristles 6, longer than the seed.—Closely allied to the preceding.

6. *S. cespitosus* Linn. : culms cespitose, terete ; spikes ovate, few-flowered ; lower glumes bracteiform, as long as the spike ; sheaths with rudiments of leaves.

b. *callosus* Big. : glumes thickened and cartilaginous at the tips.

HAB. White Hills, N. H. Big. Arc. Amer. July. 2f.—Culm 8 inches high, slender. Spike 4—5-flowered, compressed. Glumes with whitish tips.

7. *S. capillaceus* Mich. : culm minute, capillary ; spike oblong-ovate, acute, few-flowered ; glumes linear, acute ; seed compressed, obovate.—*S. pusillus* Vahl. ? Pursh.

HAB. Salt marshes. N. Y. to Car. July. 2f.—Culm 1—3 inches high, slightly furrowed. Nut crowned by a conic tubercle. Bristles 6.—Grows in large patches like moss.

8. *S. glaucescens* Willd. : culm angular, compressed, glaucous ; spike

lanceolate, compressed; glumes lanceolate, obtuse; sheaths truncate.

—*S. glaucus* Torr.?

HAB. Salt marshes. N. Y. July. 2f.—*Culm* a foot high, slender. *Glumes* obtuse, brownish. *Bristles* 4, longer than the tubercle.—Dr. Torrey's name had been appropriated to a British species by Dr. Smith.

9. *S. tenuis* Willd.: culm very slender, quadrangular; spike elliptical, acute at each end; glumes ovate, obtuse; stamens 3; styles 3-cleft; seed rugose.

HAB. Swamps. N. Y. to Car. June, July. 2f.—*Culm* 8—12 inches high. *Spike* rather obtuse, dark brown. *Bristles* 2—3, sometimes none.

10. *S. planifolius* Muhl.: culm triquetrous; radical leaves flat, nearly equalling the culm; spike terminal, oblong, compressed, shorter than the cuspidate bracts at the base.

HAB. Swamps. N. S. June. 2f.—*Culms* cespitose, 8 inches high, scabrous on the angles. *Spike* lanceolate. *Bristles* 3—4, longer than the nut.

11. *S. subterminalis* Torr.: culm floating, sulcate, inflated, leafy below; spike solitary, somewhat terminal, lanceolate; style 2-cleft; seed triquetrous.

HAB. Ponds, &c. Mass. Aug. 2f.—*Culm* 3 feet long, spongy. *Leaves* very narrow. *Spike* shorter than the bract. *Bristles* 6, nearly as long as the triangular nut.

†† *Spikes* numerous, aggregated.

12. *S. debilis* Muhl.: culms cespitose, deeply striate; spikes about 3, lateral, ovate, sessile; glumes ovate, obtuse, mucronate.

HAB. Margins of ponds. N. Y. to Car. Aug., Sept. 2f.—*Culms* 8—12 inches high, with a few subulate leaves at base. *Spikes* short, ovate, 2—3 inches from the top of the culm. *Bristles* 4—5.

13. *S. americanus* Pers.: culm nearly naked, triquetrous; sides concave; spikes lateral, (1—5) ovate, conglomerate, sessile; glumes round-ovate, mucronate; seed triquetrous, acuminate.—*S. triquetrus* Mich.—*S. pungens* Vahl. Spreng.

HAB. Marshes and wet banks. N. Y. to Car. July. 2f.—*Culm* 2—5 feet high, slender, 3-sided. *Spikes* a short distance from the top; ferruginous. *Bristles* 6.

14. *S. lacustris* Linn.: culm terete, attenuated above, naked; panicle subterminal; spikes peduncled, ovate.—*S. validus* Pursh.

HAB. Ponds and marshes. N. Y. to Car. N. to Subarc. Amer. June. 2f.—*Culm* 4—8 feet high. *Spikes* in an unequal subdivided panicle or cyme. *Bristles* 4—6, hispid.

15. *S. acutus* Muhl.: culm terete, (not attenuated,) spotted; peduncles numerous, sublateral; spikes oblong; glumes pubescent, mucronate.

HAB. Swamps. N. S. June, July. 2f.—*Culm* 4 feet high,

with brown spots. *Spikes* in a proliferous cyme or panicle, brown.—It is quite doubtful whether this is distinct from the preceding.

16. *S. maritimus* Linn.: culm triquetrous, leafy; corymb clustered; involucre about 3-leaved, very long; spikes oblong; glumes ovate, 3-cleft, the middle segment subulate and reflexed; style 3-cleft.—*S. robustus* Pursh.—*S. macrostachyos* Muhl. Torr.

HAB. Salt marshes. N. Y. to Car. N. to Subar. Amer. July, Aug. 2f.—Culm 3—4 feet high. Leaves taller than the culm. Spikes 6—10, in a clustered panicle. Bristles 4.—Our plant does not appear to differ at all from the European.

17. *S. brunneus* Muhl.: culm leafy, obtusely triangular; cyme decomposed; involucrum 3—4-leaved; spike round-ovate, clustered in about sixes; glumes ovate, obtuse.—*S. exaltatus* Pursh.

HAB. Margins of ponds and lakes. N. Y. to Car. Aug., Sept. 2f.—Culm 2—3 feet high. Leaves long, Spikes brown. Seed shorter than the bristles.

18. *S. atrovirens* Muhl.: culm triangular, leafy; cyme terminal, compound, proliferous; involucrum 3-leaved; spikes conglomerate, ovate, acute; glumes ovate, mucronate, pubescent.

HAB. Wet meadows. N. S. June, July. 2f.—Culm 2 feet high. Spikes crowded into small heads, brown, smaller than in the preceding. Bristles 4, longer than the seed.

** Seed without bristles at the base.

19. *S. capillaris* Linn.: culm nearly naked, triquetrous, capillary; spikes ovate, 2—3 of them pedunculate, with an intermediate sessile one.—*S. ciliatifolius* Ell.

HAB. Wet grounds. N. Y. to Car. Aug. ☉. ?—Culm 8 inches high, slender. Leaves mostly radical, setaceous. Spikes somewhat umbelled. Seed naked at base.

20. *S. autumnalis* Linn.: culm compressed, ancipitous; umbel compound; involucre 2-leaved; spikes lanceolate, acute, somewhat 4-sided.—*S. mucronulatus* Mich.—*Fimbristylis autumnalis* Vahl.

HAB. Low woods. N. Y. to Car. July—Oct. 2f.—Culms 8—12 inches high, cespitose. Spikes sometimes clustered in threes. Style 3-cleft, not ciliate. (Torr.) Seed naked at base.

6. TRICHOPHORUM. Pers.

Spikelets nearly ovate, imbricated in all directions. *Bristles* of the seed usually 6, finally very much lengthened and exserted.

Triandria. Monogynia.

1. *T. cyperinum* Pers.: culm obtusely 3-angled, leafy; panicle decomposed, proliferous, somewhat nodding; spikes all pedunculate.—*Eriophorum cyperinum* Linn.—*Scirpus eriophorum* Mich. Torr.

HAB. Wet grounds. Can. to Car. Aug. 2f.—Culm 3—5 feet high, smooth. Involucre 4-leaved. Panicle terminal, much divided and proliferous.—This seems to be the connecting link

between *Scirpus* and *Eriophorum*, but I think it nearest the latter.

2. *T. lineatum* Pers. : culm 3-angled, leafy ; panicles terminal and lateral, decompound, at length nodding ; involucre 1—2-leaved ; spikes ovate ; glumes lanceolate, somewhat carinate.—*Scirpus lineatus* Mich. —*S. lineatus* and *pendulus* Muhl.

HAB. Swamps. N. Y. to Geor. Aug. 2f.—Culm 2—3 feet high, very leafy. Flowers in axillary umbels or panicles, at length nodding.

7. ERIOPHORUM. Linn.

Glumes chaffy, imbricated in all directions. Seed surrounded by very long dense wool. Triandria. Monogynia.

* Spike solitary.

1. *E. alpinum* Linn. : culm triquetrous, somewhat scabrous, naked ; leaves very short, subulate ; spike oblong ; woolly hairs crisped, few. —*E. hudsonianum* Mich.—*Trichophorum alpinum* Pursh. Muhl.

HAB. Mountains. N. S. July. 2f.—Culm 8—10 inches high ; with 3—4 radical sheaths. Spike a little compressed. Hairs 6, white, very long. Cotton Grass.

2. *E. vaginatum* Linn. : culm terete below, obtusely triangular above, smooth and rigid ; sheaths inflated ; spike oblong-ovate ; glumes scarious ; wool straight, dense.—*E. cespitosum* Pursh.

HAB. Swamps. Arc. Amer. to Virg. July. 2f.—Culms a foot high, cespitose. Leaves longer than the culm. Spike long. Wool white, twice the length of the glumes.

** Spikes numerous.

3. *E. polystachyon* Linn. : leaves flat, triquetrous at the extremity ; culm nearly terete ; spikes on scabrous peduncles, nodding.—*E. tenellum* Nutt.

HAB. Swamps. N. S. July. 2f.—Culm 1—2 feet high, smooth. Spikes on long filiform peduncles. Wool white, or reddish.

4. *E. virginicum* Linn. : culm nearly terete below, obtusely triangular above ; leaves flat, very long ; spikes clustered, erect, nearly sessile ; involucre 2—3-leaved.

b. *gracile* Torr. : culm very slender ; leaves almost filiform.

HAB. Swamps. Can. to Geor. Var. b. Cedar swamps. N. J. July. 2f.—Culm 2—4 feet high. Leaves few, linear, long. Wool reddish.

5. *E. angustifolium* Roth. : culm somewhat triangular ; leaves channelled and triquetrous ; peduncles very smooth.

HAB. Swamps. N. S. N. to Arc. Amer. July. 2f.—Culm a foot high. Leaves very narrow. Spikes on short peduncles. Wool white.

8. SCHÆNUS. Linn.

Glumes fascicled into a spike, the lower ones empty. *Style* deciduous. *Seed* naked. *Triandria. Monogynia.*

S. mariscoides Muhl. : culm terete or a little sulcate, leafy ; leaves channelled, semiterete ; umbel terminal ; fascicles on spikes, 3 on each peduncle ; seed naked, rounded at the base.

HAB. Bogs. MASS. Big. N. Y. Gray. Penn. Muhl. July.
 2f.—Culm 2 feet high, smooth or with rough dots. *Spikes* lanceolate, brown. *Style* 2—3-cleft. *Bog Rush.*

9. RHYNCHOSPORA. Vahl.

Glumes fascicled into a spike, the lower ones empty. *Seed* 1, crowned with the persistent style ; its base surrounded with bristles. *Triandria. Monogynia.*

1. *R. alba* Vahl. : spikes in corymbose fascicles ; culm triangular above ; leaves setaceous ; seed somewhat lenticular ; bristles about 10.
 —*Schænus albus* Linn.

HAB. Swamps and bogs. N. Y. to Car. July—Sept. 2f.—
 Culm 12—18 inches high. *Fascicles* axillary and terminal, peduncled. *Glumes* nearly white, at length brownish.

2. *R. fusca* Vahl. : culm triquetrous ; leaves linear, carinate ; fascicles of spikes alternate, pedunculate ; spikes ovate ; glumes ovate, brown ; seed ovate, with an acute black tubercle.—*Schænus fuscus* Linn.

HAB. N. Y. Muhl. 2f.—Culm 2 feet high. *Leaves* smooth. *Glumes* mucronate. *Seed* brown, rugose, as long as the hispid bristles.

3. *R. glomerata* Vahl. : spikes in corymbose fascicles, very distant, by pairs ; culm obtusely triangular ; leaves flat ; seed obovate-cuneiform, very smooth, as long as the tubercle.—*Schænus glomeratus* Linn.

HAB. Swamps and bogs: N. J. to Car. July, Aug. 2f.—Culm 12—18 inches high, smooth and leafy. *Spikes* lanceolate. *Glumes* brown.

4. *R. capillacea* Torr. : spikes 3—5, nearly terminal ; culm triquetrous, somewhat leafy ; leaves setaceous ; seed stipitate, a little rugose.—*Schænus setaceus* Muhl.

HAB. Sandy swamps. N. J. and Penn. July. 2f.—Culm 8 inches high, slender. *Spikes* with a setaceous bract at base. *Glumes* brown. *Bristles* 6, longer than the seed.

5. *R. sparsa* Vahl. : culm triquetrous, leafy ; corymbs axillary and terminal, compound, loose ; peduncles capillary ; seed obovate, rugose, much longer than the tubercle.—*Schænus sparsus* Mich. Muhl.

HAB. Wet grounds. Penn. to Car. July. 2f.—Culm 2 feet high. *Flowers* in spreading panicles. *Glumes* brown. *Bristles* twice as long as the seed.

6. *R. cymosa* Torr. : culm triquetrous, leafy ; cymes terminal and axillary ; the terminal one much larger ; seed round-ovate, compressed, transversely rugose ; tubercle conical.—*Schanus cymosus* Willd. Mich.

HAB. Swamps. Penn. to Car. July. 2f.—Culm 12—18 inches high. Glumes broad ovate, lower one mucronate. Bristles shorter than the seed.

7. *R. laxa* Vahl. : culm triquetrous ; corymbs leafy, decomposed, loose ; spikes subulate ; seed obovate, pointed with the long persistent style.—*R. longirostris* Ell.—*Schanus longirostris* Mich.

HAB. Swamps. Del. to Car. July. 2f.—Culm 3—6 feet high. Leaves 1—2 feet long. Bristles 6, shorter than the seed.

10. MARISCUS. Vahl.

Flowers distinct, in a somewhat imbricate spike. Glume 2-valved, unequal, 3-flowered. Palea 1. Style 3-cleft. Seed triquetrous, naked. Triandria. Monogynia.

1. *M. retrofractus* Vahl. : umbel simple ; rays long ; spikes obovate, retroely imbricate ; spikelets subulate, at length bent backwards ; involucre 3-leaved.—*Scirpus retrofractus* Linn.

HAB. Wet grounds. N. Y. to Car. July, Aug. 2f.—Culm 2 feet high, naked, triangular. Leaves linear, long. Umbel with 6—8 unequal rays, longer than the involucre.

2. *M. ocularis* Vahl. : umbel simple ; rays short ; spikes globose ; flowers spreading.—*M. echinatus* Ell.—*Killingia ovalaris* Mich.—*Scirpus echinatus* Linn.

b. tenellus Torr. : culm acutely triangular, slender ; involucre 3—5-leaved, 3 of the leaves many times longer than the umbel.

HAB. Bogs and low grounds. N. Y. to Car. July, Aug. 2f.—Root bulbous. Culm 6—18 inches high. Spikes forming a globose head. Style 3-cleft.

11. FUIRENA. Linn.

Glumes awned, imbricated on all sides into a spike. Palea 3, (or perianth 3-valved,) petaloid, cordate, awned, unguiculate. Triandria. Monogynia.

1. *F. squarrosa* Mich. : spikes clustered, (5—6,) ovate ; culm smooth ; leaves ciliate ; sheaths hairy ; valves of the perianth cordate-ovate.

HAB. Bogs. N. J. to Car. Aug., Sept. 2f.—Culm 1—2 feet high, angular, slender at the top. Spikes clustered into 2 heads, the lateral one upon a long peduncle.

2. *F. torreyana* Beck : spikes 1—3, terminal ; culm pubescent above ; leaves smooth ; throat of the sheaths hairy.—*F. squarrosa* var. *pumila* Torr.—*F. pumila* Spreng.

HAB. Wet sandy places. N. Y. Torr. Aug. 2f.—Culm 3—6 inches high, angular, smooth. Spikes generally 3, often solitary.

DIV. III. SCLEREE.

12. SCLERIA. Linn.

Monoecious. STERILE FL. *Glumes* 2 or 6, many-flowered. *Paleæ* unarmed. FERTILE FL. *Glumes* 2 or 6, 1-flowered. *Paleæ* none. *Stigmas* 1—3. *Nut* coloured, subglobose. *Monoecia. Triandria.*

1. *S. triglomerata* Mich. : culm erect, acutely triquetrous, scabrous ; leaves broad-linear, subscabrous and a little hairy ; spikes lateral and terminal, fasciculate ; glumes ciliate, mucronate ; nuts smooth and polished.

HAB. Swamps. Penn. to Car. June, July. 2f.—Culm 3—4 feet high. *Nut* large, white and hard. *Whip Grass.*

2. *S. pauciflora* Muhl. : stem triquetrous and with the narrow leaves smooth ; spikes lateral and terminal, few-flowered ; the lateral ones pendulous, terminal, fasciculate ; glumes smooth ; seed roughened.

HAB. Low meadows. Penn. to Car. Aug. 2f.—Culm 2 feet high, slender. Lateral spikes 2, on long pendulous peduncles.

3. *S. verticillata* Muhl. : stem simple, triquetrous, and with the leaves smooth ; spike glomerate, naked, the clusters alternate, distant ; glumes smooth ; seed globose, mucronate, transversely corrugate.

HAB. Wet grounds. Penn. to Car. Aug. 2f.—Culm a foot high, very slender, smooth. *Spikes* small. *Nut* small, tuberculate.

DIV. IV. CARICINÆ.

13. CAREX. Linn.

Monoecious, (rarely dioecious.) *Flowers* collected into an imbricated ament. *Glume* 1-flowered. *Corol* (or *nectary* or *perianth*) ventricose, 1-valved, persistent, enclosing the coriaceous *nut* or *caryopsis*. *Monoecia. Triandria.*

Obs. Two excellent Monographs of the North American species of this genus, have been published. The one by Prof. Dewey, is contained in Silliman's Journal, from the 7th to the 14th volumes, inclusive ; —the other by Mr. Schweinitz and Dr. Torrey, in the first volume of the Annals of the New-York Lyceum. I shall adopt the latter, with a few additions.

A. Inflorescence dioecious.

1. *C. sterilis* Willd. : spikes dioecious ; sterile 3—5 ; fertile about 6, (sometimes androgynous ;) fruit ovate, compressed, triquetrous ; margin ciliate-serrate ; apex recurved and bicuspidate.

HAB. Marshes. N. Y. Penn. Car. May. 2f.—Culm 8—12 inches high. *Spikes* approximate, oblong.

B. Inflorescence monoecious.

† All the spikes androgynous.

* Spike solitary.

a. Summit staminiferous.

2. *C. fraseri* Sims: spike simple, ovate; fruit ovate-subglobose, entire at the point, longer than the oblong glume; leaves lanceolate, undulate, crenulate; scape sheathed at the base.—*C. lagopus* Muhl.

HAB. Mountains. Penn. N. Car. April. 2f.—Leaves broad, radical.

3. *C. willdenovii* Schk.: spike simple, ovate; sterile and fertile flowers about 6; fruit ovate, subglobose at the base, rostrate; glumes ovate, acuminate, the inferior ones very long and foliaceous, much exceeding the culm.

HAB. Rocky woods. Penn. to N. Car. May, June. 2f.—Culm 8—12 inches high. Lower glumes foliaceous and much longer than the spike.

4. *C. polytrichoides* Muhl.: spike simple; fruit oblong-lanceolate, compressed, triquetrous, obtuse, emarginate; glumes oblong-obtuse, mucronate.

HAB. Dry hills and bogs. Can. to Penn.; common. May. 2f. Culm a foot high, very slender. Leaves subradical, very narrow.

5. *C. pauciflora* Light.: spike about 4-flowered; sterile flower sub-solitary, terminal; fruit lanceolate, terete, reflexed; fertile glumes caducous.

HAB. Sphagnum swamps. May, June. 2f.—Culm 8 inches high. Fruit large, pale yellow, caducous.

b. Summit pistilliferous.

6. *C. squarrosa* Linn.: spike mostly simple, (sometimes spikes 2—3,) very thick, oblong-cylindrical; fruit imbricate, at length horizontal, smooth, subsquarrose, bidentate at the point, longer than the lanceolate glume.—*C. typhina* Mich.

HAB. Bogs. Can. to Geor. W. to Miss. May, June. 2f.—Culm 2 feet high. Spike nearly an inch long and half an inch thick.

** Spikes several, aggregated into a head.

7. *C. cephalophora* Muhl.: spikes collected into an elliptical head; fruit ovate, scabrous on the margin above, about equal to the ovate subaristate glume.

HAB. Oak woods. Can. to Car.; common. May. 2f.—Culm 1—2 feet high, wiry, leafy at base. Spikes forming a trifid head.

*** Spikes distinct, (not aggregated into a head.)

a. Summit staminiferous.

1. With 2 stigmas.

8. *C. bromoides* Schk.: spikes 4—6, alternate, oblong, erect, uppermost one sterile above, the rest pistilliferous or androgynous (sterile

above and below ;) fruit erect, lanceolate acuminate, scabrous, nerved, bifid, longer than the ovate-lanceolate glume.

HAB. Bogs. N. S. ; common. May. 2l.—*Culm* 12—18 inches high, slender and scabrous. *Spikes* subdistichous, half an inch long.

9. *C. retroflexa* Muhl. : spikes about 4, subapproximate, ovate, the lowest one with a short bract ; fruit ovate-lanceolate, bidentate, scabrous on the margin, spreading and reflexed, as long as the ovate acute glume.

HAB. Meadows, &c. N. S. May. 2l.—*Culm* 8—12 inches high, nearly 6-sided. *Spikes* 3—5, rarely 9 ; the lower one distant.

10. *C. rosea* Schk. : spikes 4—6, remote, about 9-flowered, the lowest one with a setaceous bract overtopping the culm ; fruit ovate, acuminate, diverging and radiate, scabrous on the distinct margin, twice as long as the ovate obtuse glume.

HAB. Moist woods. N. S. ; common. May. 2l.—*Culm* a foot high. *Spikes* 3—6, yellowish-green ; lower ones distant.

11. *C. disperma* Dew. : spikes about 3, rather remote, mostly 2-flowered, somewhat erect, the lowest one bracteate ; fruit ovate, rather obtuse, nerved, plano-convex, smooth, with a scabrous margin, entire at the point, twice as long as the ovate, obtuse submucronate glume.

HAB. Mountain woods. N. Y. Mass. May, June. 2l.—*Culm* 6—12 inches high. *Fruit* small. Var. *tetrasperma* has the fertile spikes 3—4 flowered.

12. *C. muhlenbergii* Schk. : spikes about 5, ovate, crowded at the summit of the culm, bracteate at the base ; fruit broad-ovate, compressed, nerved, bifid, somewhat diverging, scabrous on the margin, rather shorter than the ovate mucronate glume.

HAB. Rocky woods. N. Y. S. Car. May. 2l.—*Culm* 1—2 feet high, thick. *Plant* dark green.

13. *C. stipata* Muhl. : spike compound, oblong ; spikelets numerous. (10—15,) oblong, aggregated, bracteate ; bracts a little longer than the spikelets ; fruit lanceolate, subterete and smooth below, spreading, bidentate at the point, which is scabrous, twice as long as the glume.

HAB. Wet meadows. Throughout the U. S. April, May. 2l.—*Culm* 1—3 feet high, thick and succulent, smooth. *Spike* consisting of many crowded spikelets.

14. *C. sparganioides* Muhl. : spikelets about 8, many-flowered ; upper ones approximate, lower ones subdistant, bracteate ; fruit ovate, compressed, acuminate, bifid, diverging, scabrous on the margin, twice as long as the ovate mucronate glume.

HAB. Wet meadows. Throughout the U. S. ; rather rare. May. 2l.—*Culm* 2 feet high. *Lower spikes* remote.

15. *C. multiflora* Muhl. : spike oblong, decompound, bracteate, interrupted ; spikelets glomerate, ovate-oblong, obtuse ; fruit ovate agu-

minate, compressed, crowded, bifid, 3-nerved, serrulate on the margin, at length diverging, rather shorter than the ovate cuspidate glume.

HAB. Wet meadows. N. Y. to Car. ; common. May. 2f.—
Culm 2 feet high, obtusely triangular. Spike subpaniculate.

16. *C. setacea* Dew. : spike oblong, decompound, bracteate ; spikelets glomerate, ovate, obtuse ; fruit ovate, acuminate, compressed, bifid, subdiverging, as long as the ovate-lanceolate awned glume.

HAB. Wet meadows. Mass. Dew. June, July. 2f.—Culm 18—30 inches high, acutely triangular, sulcate.—Resembles the preceding, but its fruit is less ovate, longer and more compressed.

17. *C. paniculata* Linn. : spike decompound, paniculate, interrupted, the branches alternate and somewhat remote ; fruit ovate, acuminate, spreading, margined above, bifid.

HAB. Wet meadows. Mass. N. Y. N. J. May. 2f.—Culm 18 inches high. Spikes not becoming black.

18. *C. teretiuscula* Good. : spike decompound or paniculate, dense, subacute, (often dioecious, at length brown) ; spikelets with short bracts at the base ; fruit ovate, acuminate, somewhat gibbous at the base, bidentate, ciliate-serrulate on the margin.

HAB. Marshes and bogs. N. Y. and N. Eng. May.—Culm 18 inches high. Spike narrow. Fruit and glume brown.

2. With 3 stigmas.

19. *C. pedunculata* Muhl. : spikes about 4, on long peduncles, very remote ; fruit obovate, triquetrous, obtuse, smooth, entire at the orifice ; glumes ovate, mucronate, (purple and green.)

HAB. Rocky hills. Can. to Penn. May. 2f.—Culm filiform, 6 inches high. Peduncles mostly radical. Glumes purplish and green.

20. *C. ovata* Rudge. : spikes about 5, pedunculate, ovate, pendulous ; fruit obovate, acute at each end, as long as the ovate acute glume.

HAB. Canada. 2f.—Culm acute, triangular. Spikes densely imbricate. Glumes brown, as long as the fruit.

b. Summit pistilliferous.

1. With 2 stigmas.

21. *C. deweyana* Schw. & Torr. : spikes about 3, sessile, loose, two of them approximate, the third distant, with long bracts at the base, (except the highest) ; fruit oblong-lanceolate, subcompressed, rostrate, bifid at the point ; beak serrulate ; culm flaccid.

HAB. Woods. N. Y. and N. Eng. June. 2f.—Culm 1—4 feet high, weak and slender, subprocumbent.—Plant yellowish-green.

22. *C. loliacea* Linn. : spikes about 4, rather distant, few-flowered ; fruit elliptical, obtuse, nerved, compressed, erect.

HAB. Swamps. N. J. ? N. to Arc. Amer.—Culm 2 feet high, slender. Spikes 3—5-flowered.

23. *C. trisperma* Dae. : spikes 3, remote, alternate, sessile, ovate, uppermost one without a bract ; fruit oblong, acute (or short-rostrate) entire at the point, many-nerved, subscabrous above, somewhat diverging, longer than the oblong acute hyaline glume.

HAB. Mountain swamps. N. Eng. June. 2l.—*Culm* 18 inches high, filiform, prostrate. Whole plant pale green.—Allied to the preceding, but differs in the glume and fruit.

24. *C. arida* Schw. & Torr. : spikes 8, (large) subapproximate, dry; fruit elliptical, compressed, winged, terete in the middle, acuminate at each end, divergingly bifid ; culm leafy.

HAB. Meadows. Ohio and W. June. 2l.—*Culm* 2—3 feet high. *Leaves* very long, dark green. *Spikelets* very large, gray.

25. *C. lagopodioides* Schk. : spikes numerous, (10—16,) elliptic, crowded ; bract beneath the lowest overtopping the culm ; fruit lanceolate, acuminate, erect, bicuspidate, with a narrow serrulate margin, twice as long as the ovate-lanceolate glume.

HAB. Wet meadows. N. Y. to Car. May. 2l.—*Culm* 1—2 or more feet high, furrowed. *Spikes* large, subcylindric when young,

26. *C. scoparia* Schk. : spikelets mostly 5, (sometimes 6 or 7,) ovate, sessile, approximate, aggregate, lowest one bracteate ; fruit ovate-lanceolate, margined, nerved, smooth, bicuspidate, longer than the lanceolate acuminate glume.

HAB. Swamps. N. Y. Mass. S. to Car. May. 2l.—*Culm* 1—2 feet high. *Leaves* long and narrow. *Fruit* tawny when mature, not winged, 9-nerved.

27. *C. straminea* Willd. : spikes about 5, (4—7,) roundish, approximate, with short bracts at the base ; fruit roundish-ovate, rostrate, compressed, broadly ovate, bidentate, serrulate, longer than the lanceolate glume.

HAB. Wet meadows. N. Y. and N. Eng. May. 2l.—*Culm* 8—12 inches high, leafy. *Spikes* yellowish when mature. *Fruit* acuminate.

28. *C. fanea* Muhl. : spikes numerous, (8—10,) inferior ones distinct, upper ones aggregated and confluent ; fruit ovate, acuminate, winged, bidentate, somewhat longer than the ovate glume.

HAB. Marshes. Penn. to Car. June. 2l.—*Culm* 2 feet high, obtusely triangular, furrowed. *Spikes* subglobose. *Glumes* ribbed, ciliate.

29. *C. cristata* Schw. & Torr. : spikes numerous, (8—15,) aggregated into a kind of head ; fruit ovate-lanceolate, winged, diverging, serrate, longer than the ovate-lanceolate glume.

HAB. Wet woods. N. Y. Mass. Penn. ; common. June. 2l.—*Culm* 2 or more feet high. *Spikes* crowded into an ovate head.

30. *C. festucea* Schk. : spikes obovate, (5—8,) subapproximate, bracteate ; fruit roundish-ovate, rostrate, bidentate, winged, serrulate on the margin, longer than the ovate-lanceolate glume.

HAB. Meadows and woods. Throughout the U. S. May. 2f.
—Culm 30 inches high, sometimes decumbent. Fruit silvery white or pale green, not becoming tawny.

31. *C. stellulata* Good. : spikes 3—4, rather remote, upper one attenuate at the base, the rest ovate ; fruit ovate, plano-convex, spreading, and at length reflexed, short-acuminate, scabrous on the margin.

HAB. Wet grounds. N. Y. to Car. May. 2f.—Culm 8—18 inches high, slender. Fruit broad ovate, almost cordate when ripe.

32. *C. scirpoides* Schk. : spikes 4, ovate, obtuse, approximate, uppermost one clavate ; fruit ovate, bidentate, plano-convex, erect, and a little spreading, but not reflexed, subcordate, serrulate, longer than the ovate obtuse glume.

HAB. Wet meadows. N. Y. to Car. May. 2f.—Culm 6—12 inches high, stiffly erect. Fruit erect or spreading horizontally.

33. *C. curta* Good. : spikes about 6, subremote, somewhat cylindric-ovate, tumid, sessile ; fruit short-ovate, plano-convex, rather acute, erect, entire at the point.

HAB. Wet meadows. Can. and N. Y. May. 2f.—Culm 2 feet high, nodding at the top. Glumes whitish, with a green keel.

34. *C. tenera* Dew. : spikes about 5, obovate, rather remote, sessile attenuate at the base, the lowest bracteate ; fruit ovate, compressed, rostrate, serrulate, longer than the oblong-lanceolate glume.

HAB. Moist meadows. Mass. N. Y. May. 2f.—Culm 15—30 inches high. Spikes nodding, brownish.—Resembles *C. scoparia*, but differs in the form of the fruit. Dr. Torrey queries whether it is not *C. sterilis*.

35. *C. remota* Linn. : spikes alternate, remote ; bracts leafy, very long ; fruit ovate acuminate, bifid, somewhat compressed.

HAB. Woods. Penn. ? Torr. N. to Arc. Amer.

2. With 3 stigmas.

36. *C. atrata* Linn. : androgynous spikes 3, pedunculate, crowded, subpendulous in fruit, (black ;) fruit roundish-ovate, with a short beak, bidentate.

HAB. White Hills. N. H. Nutt. Rocky Mountains. James. June. 2f.—Culm 6 inches high. Spikes large, black.

c. *Summits of the highest and lowest spikelets stamiferous—the middle spikes entirely stamiferous.*

1. With 2 stigmas.

37. *C. siccata* Dew. : terminal spikes obtuse ; lower ones mostly in fours, ovate, somewhat acute ; fruit ovate-lanceolate, acuminate, compressed, scabrous on the margin, bifid, nerved, nearly equal to the ovate-lanceolate scale.

HAB. Sandy plains. Mass. June. 2f.—Culm 12—18 inches high, small, stiff and scabrous. Spikes 3—7, ovate, approximate. Plant of a light green colour, and of a dried appearance.

†† *Terminal spikes androgynous ; the rest pistilliferous ; stigmas 3.*

38. *C. virescens* Muhl. : spikes 3, oblong, erect ; upper one pedunculate, sterile below, the rest fertile, sessile and bracteate ; fruit ovate, obtuse, costate, pubescent.

b. costata S. & T. : spikes larger ; fruit strongly costate ; exterior sheaths purple.

HAB. Dry woods. Can. to Car. May. 2f.—Culm 18—24 inches high. Leaves and sheaths pubescent. Spikes approximate. Plant dull green. Var. *b.* is larger in all its parts.

39. *C. hirsuta* Willd. : spikes 3, erect, approximate, densely fruited, upper one ovate-oblong, on a short peduncle ; the rest ovate, sessile, bracteate ; fruit roundish-ovate, nerved, obtuse, smooth, orifice entire, longer than the ovate acuminate glumes ; leaves and sheaths pubescent.

HAB. Rocky woods and meadows. Can. to Geor. W. to Mich. May. 2f.—Culm 12—18 inches high. Fruit pubescent when young.—Resembles *C. virescens*, but differs in its shorter and thicker spikes and in the fruit being smooth when mature.

40. *C. buxbaumii* Wahl. : spikes about 4, obovate, subremote, upper one androgynous and pedunculate, the rest sessile, with very long bracts ; fruit ovate, obtuse, rather compressed, orifice entire, shorter than the ovate acuminate (brown) glume.

HAB. Swamps. N. S. W. to Mich. June. 2f.—Culm 2 feet high. Glumes dark brown. Fruit smooth, pale green.

41. *C. digitalis* Muhl. : spikes mostly 4, distant, slender, pedunculate, loosely-flowered, nodding ; uppermost androgynous, fertile above ; the rest all fertile ; fruit oblong, subtriquetrous, obtuse, smooth, longer than the oblong mucronate glume.—*C. gracillima* Dew.

HAB. Wet meadows. N. Y. N. Eng. and Penn. W. to Mich. May. 2f.—Culm 18 inches high, slender, but erect. Spikes linear and filiform. Plant smooth and pale green.

42. *C. formosa* Dew. : spikes 4, oblong, thick, distant, on exsert peduncles, nodding, uppermost one sterile at the base ; fruit oblong, triquetrous, somewhat inflated, rather acute at each end ; orifice nearly entire or 2-lobed, obscurely nerved, twice as long as the ovate acute glume.

HAB. Wet meadows. Mass. Dew. May. 2f.—Culm 12—18 inches high. Leaves sometimes pubescent. Plant yellowish-green.—Allied to the preceding, but differs in its acute fruit, shorter and ovate spikes, &c.

43. *C. torreyana* Dew. : spikes 4, filiform, pedunculate, somewhat nodding, uppermost one sterile at the base ; fruit oblong, triquetrous,

acute at each end, slightly 2-lobed, shorter than the oblong awned glume; leaves and sheaths pubescent.

HAB. Meadows. N. Y.; rare. June. 2f.—Culm 18 inches high. Spikes slender. Rachis flexuous. Glumes hyaline.

††† *Staminiferous and pistilliferous spikes distinct.*

* *Staminiferous spike solitary.*

1. *With 2 stigmas.*

44. *C. novæ anglie* Schw. & Torr.: sterile spike on a short peduncle; fertile 2—3, sessile, ovate, few-flowered, rather remote; fruit oval-subtriquetrous, rostrate, minutely pubescent, longer than the ovate-mucronate glume; culm slender, subdecumbent.

HAB. Saddle Mountain. Mass. June. 2f.—Culm 6—8 inches high, with very small and narrow leaves. Spikes usually 4-flowered, lower ones distant.

45. *C. aurea* Nutt.: fertile spikes mostly 3, oblong, loose flowered, subpendulous, rather approximate, lower ones pedunculate; fruit obovate or pyriform, obtuse, nerved, entire at the orifice, longer than the ovate acute glume.

HAB. Wet rocks. Can., N. Y. and Mass. W. to Mich. May, June. 2f.—Culm 4—10 inches high, subprocumbent, slender. Fruit orange coloured when mature.

2. *With 3 stigmas.*

§ *Pistilliferous spikes sessile, or with the peduncles inclosed.*

46. *C. varia* Muhl.: fertile spikes 2—3, approximate, few-flowered, ovate, subsessile; sterile spike sessile, (or on a short peduncle;) fruit subglobose, acuminate, bifid, obtusely triangular, hispidly pubescent, as long as the ovate acuminate glume.

HAB. Dry woods. Hudson's Bay to Geor. April. 2f.—Culm 8—12 inches high, erect, filiform. Fruit ventricose, nearly globose.

47. *C. marginata* Muhl.: sterile spike pedunculate; fertile spikes mostly 2, approximate, subglobose, subsessile; fruit globose, woolly, bidentate, longer than the ovate-oblong glume.

HAB. Dry woods. Can. to Car.; common. April. 2f.—Culm 8—12 inches high, slender. Sterile spike somewhat 3-sided. Glumes brown, with a white margin.

48. *C. vestita* Willd.: sterile spike mostly solitary, (rarely geminate, with the upper one elongate,) pedunculate, cylindrical-oblong; fertile 2, ovate-oblong, sessile, subapproximate, sometimes sterile at the summit; fruit ovate, subtriquetrous, nerved, with a short rostrum, pubescent, rather longer than the ovate mucronate glume.

HAB. Wet grounds. Mass. to Geor.; rather rare. May, June. 2f.—Culms in tufts 2 feet high. Glumes brown, with a white margin. Fruit with a short and bifid beak.

49. *C. pubescens* Muhl.: sterile spike subsessile; fertile 3, oblong, erect, rather loosely-flowered, the lowest on a short peduncle; fruit

ovate triquetrous, rostrate, pubescent, orifice nearly entire, as long as the ovate mucronate glume ; leaves and culm pubescent.

HAB. Woods. Can. to Penn. May. 2f.—*Culm* 12—18 inches high, erect or subdecumbent. *Leaves* very pubescent.

50. *C. flava* Linn. : sterile spike on a short peduncle ; fertile mostly 3, ovate, subapproximate, (the lowest rather remote,) on short included peduncles ; fruit ovate, densely imbricate, bidentate, with a curved and reflexed rostrum, shorter than the ovate-lanceolate glume.

HAB. Meadows. Can. and N. Y. 2f.—*Culm* 12—14 inches high, erect. *Fertile spikes* 2—4. Whole plant greenish-yellow.—Found in the western part of New-York, by Dr. Gray.

51. *C. æderi* Linn. : sterile spike on a short peduncle ; fertile about 3, ovate, approximate, subpedunculate, densely flowered ; fruit ovate-globose, horizontal, with a straight rostrum.

HAB. Rocky banks. Hudson's Bay, Can., N. Y. and N. J. June. 2f.—*Culm* 8—12 inches high.—Resembles *C. flava*, but differs in having the spikes more densely flowered and the fruit smaller.

52. *C. tentaculata* Muhl. : fertile spikes 2—3, (rarely 4,) sessile, ovate or ovate-cylindrical, approximate, horizontal ; bracts very long ; fruit ovate, ventricose, nerved, with a very long rostrum, orifice bidentate, longer than the lanceolate glume.

HAB. Wet meadows. Can. to Geor. May, June. 2f.—*Culm* 12—18 inches high. *Spikes* large and thick, varying in length. *Plant* yellowish-green.

53. *C. nigra* All. : sterile spike pedunculate ; fertile 2—3, (rarely 4,) rather remote, oblong (black) sessile, erect ; fruit obovate, compressed-triquetrous, subacute, orifice entire, as long as the ovate glume.

HAB. Labrador. White Hills, N. H. July. 2f.—*Culm* 8—12 inches high. *Fruit* smooth and nerveless. *Stigmas* 2—3.

54. *C. lupulina* Muhl. : sterile spike on a short peduncle, (rarely geminate ;) fertile 3, subsessile, ovate-oblong, erect, approximate ; bracts very long and leafy ; fruit ovate, inflexed, nerved, long-rostrate, bicuspidate, much longer than the ovate glume.

b. *polystachia* T. & S. : fertile spikes 5, oblong-cylindric, lowest one remote, on a long peduncle.

c. *pedunculata* Gray : fertile spikes all pedunculate ; the lower long-pedunculate, distant, the 3 upper subumbellate.

HAB. Swamps. Hudson's Bay to Geor. June. 2f.—*Culm* 2—3 feet high, very thick, smooth and leafy. *Spikes* very thick.—Var. c. was found by Dr. Gray on the shores of Lake Erie. It flowers in July.

55. *C. folliculata* Linn. : sterile spike pedunculate ; fertile 2, (often solitary,) roundish, approximate, few-flowered, upper one sessile, lower one short peduncled ; bracts leafy ; fruit ovate, acuminate-rostrate, ovate, reflexed and diverging, bicuspidate.

HAB. Swamps. Can. to Geor. June. 2f.—*Culm* 18 inches high. *Spikes* 6—10-flowered. Plant dark green.

56. *C. zanthophysa* Wahl.: fertile spikes 3—4, ovate, very remote, pedunculate, few-flowered; fruit oblong-conical, somewhat inflated, striate, horizontal when mature, acute, bifid, longer than the ovate acuminate-glume.

HAB. Swamps. N. Y. to Car. June. *Culm* 2—4 feet high, slender, leafy. *Fruit* 1-2 inch long, tapering into a long acute point.—Plant at length yellow-green.

57. *C. subulata* Mich.: sterile spikes short-pedunculate; fertile mostly 4, sessile, or with included peduncles, very remote, few-flowered, sterile at the apex; fruit subulate, reflexed, much longer than the lanceolate glume; culm very slender.

HAB. Cedar swamps. N. J. July. *Culm* 2 feet or more high. *Spikes* 3—5-flowered. *Fruit* with a long slender beak.

58. *C. alpestris* All.: fertile spikes 3, 5-flowered, the 2 uppermost approximate and sessile, the lowest radical, on a long peduncle; fruit obovate-oblong, triquetrous, scarcely rostrate, subpubescent, orifice oblique, as long as the oblong-glume.

HAB. Woody hills. Mass. *Culm* 6 inches high.

59. *C. collecta* Desv.: sterile spike solitary, erect, loosely imbricate, slender, subpeduncled; fertile spikes mostly in threes, ovate, few-flowered, bracted; lower one on a short peduncle; fruit ovate, beaked, sub-bidentate, somewhat pubescent, longer than the ovate acute scale.

HAB. Bogs. Mass. May. *Culm* 6—10 inches high, procumbent when mature. Plant light green.—Allied to *C. nova anglia*, but differs in number of stigmas and in other characters. From *C. varia* it differs in its staminate spike, its manner of growth, scale, and in its fruit being more ovate, &c.

§§ *Pistilliferous spikes on exsert peduncles, partly sheathed at the base.*

60. *C. alba* Henke.: sterile spike pedunculate; fertile 2—3, pedunculate, about 5-flowered; fruit obovate, with a short rostrum, obliquely truncate; sheath at the base of the culm hyaline, leafless.

HAB. Limestone hills. N. H. and Ver. June. *Culm* 4—10 inches high, filiform, sulcate. *Bracts* ovate, white. *Fruit* black when mature.

61. *C. plantaginea* Lam.: fertile spikes mostly 4, on peduncles scarcely exserted, loosely flowered; fruit oblong-cuneiform, triquetrous, recurved at the apex; culm sheathed at the apex; sheaths of the culm all leafless, (coloured;) leaves broad.

HAB. Mountain woods. N. Y. Mass. and Penn. April, May. *Culm* 8—12 inches high, nearly leafless, with purple sheaths. *Glumes* dark brown.

62. *C. anceps* Muhl.: fertile spikes mostly 3, remote, subcylindric, loosely flowered, lower ones pedunculate; fruit ovate, triangular,

acute, striate, narrowed at the base, orifice obscurely bidentate, about as long as the ovate cuspidate glume.—*C. plantaginea* Muhl. Ell.

HAB. Woods. Can. to Car. April, May. *Culm* 12—14 inches high. *Leaves* sometimes very broad; hence this plant has been confounded with the preceding.

63. *C. oligocarpā* Schk.: fertile spikes 3, pedunculate, few-flowered: lower peduncles elongate; fruit short-ovate, acutely triangular, with a short rostrum, orifice entire, longer than the ovate glume.

HAB. Rocky woods. Hudson's Bay to Penn. May. *Culms* in tufts, 6 inches high, slender, with the angles very prominent. *Leaves* subglaucous. *Spikes* 5—8-flowered.

64. *C. scabrata* Schw. & Torr.: fertile spikes 5, subremote, cylindrical, mostly erect, lower ones long-pedunculate; fruit ovate, with an acuminate rostrum, subventricose, scabrous, orifice oblique and somewhat bifid, longer than the ovate-lanceolate ciliate glume.

HAB. Swamps. N. H. Mass. N. Y. May. *Culm* 18 inches high. *Leaves* long and very rough. Plant dark green.

65. *C. conoidea* Schk.: fertile spikes 2—3, oblong, remote, rather loose, uppermost subsessile, lower ones on long peduncles; fruit oblong-conical, obtuse, recurved at the apex, as long as the awned glume.—*C. blanda* Desv.

HAB. Woods, &c. Can. to Car. May. *Culm* 6—12 inches high; angles scabrous. *Leaves* thin and flat. *Spikes* pale green.—A variable species.

66. *C. tetanica* Schk.: sterile spike long-pedunculate; fertile 2—3, remote, rather densely flowered, upper one subsessile, lowest on a long peduncle: fruit ovate-oblong, acute at each end, nerved, subgibbous at the summit, oblique, orifice entire, longer than the ovate mucronate glume.—*C. granularioides* Desv.

HAB. Wet meadows. Can. to Car. May. *Culm* a foot high, *Spikes* very remote,

67. *C. laxiflora* Lam.: sterile spike subsessile; fertile mostly 3, rather loose, remote, pedunculate, erect; fruit ovate oblong, ventricose, obtuse, somewhat shining, longer than the ovate cuspidate glume.

HAB. Woods, &c. Can. to Geor. May. *Culm* 12—18 inches high. *Fruit* shining, inflated when mature.

68. *C. granularis* Muhl.: sterile spike sessile or short-pedunculate; fertile mostly 3, remote, cylindrical, dense; uppermost subsessile, lowest on a long peduncle; fruit globose-ovate, nerved, orifice entire; rostrum very short and recurved.

HAB. Wet grounds. Can. to Penn. May. *Culm* a foot high. *Leaves* subglaucous. *Fruit* ventricose, strongly nerved.

69. *C. sylvatica* Huds.: fertile spikes mostly 4, remote, filiform-dense, peduncles nodding; fruit ovate, rostrate, bifid, twice as long as the ovate mucronate glume.

HAB. Woods. Can. and N. S. May. *Culm* 12—18 inches high. *Spike* 1 1-2 inches long. Plant pale green.

70. *C. flexuosa* Muhl.: fertile spikes 4, remote, filiform, on nodding peduncles; fruit distant, alternate, oblong, acute at each end, rostrate, bifid, twice as long as the ovate-mucronate glume.

HAB. Wet meadows. Can. to Geor. June. *Culm* 18—24 inches high, sometimes procumbent. *Leaves* narrow. *Spikes* 2 inches long. *Rachis* at length flexuous.

71. *C. washingtoniana* Dew.: sterile spike solitary, erect; fertile spikes oblong, cylindric, subsessile, subremote, erect; flowers somewhat scattered; fruit oval, acute at each end, compressed, shortly beaked, with a smooth and entire orifice, about equalling the ovate-oblong, acutish scale.

HAB. Damp grounds. White Mountains, N. H. June. *Culm* a foot high, scabrous above. *Fertile spikes* 2—4 inches long, loose flowered. Plant light green, spikes black or dark brown.

72. *C. halseyana* Dew.: sterile spikes mostly 2, oblong, erect, sessile, lower ones shorter; fertile spikes remote from the sterile, solitary, oblong, cylindric, on a long peduncle, erect, loosely flowered, (rarely 2, distant and with the upper one staminiferous above;) fruit oval-ovate, shortly beaked, subtriquetrous, inflated, nerved, smooth, orifice oblique, a little longer than the ovate acutish scale.

HAB. Meadows. Mass. May. *Culm* 1—2 feet high, purplish near the base. *Fertile spikes* 1—2. Plant dark green.

§§§ *Pistilliferous spikes on long peduncles, nearly destitute of sheaths.*

73. *C. umbellata* Schk.: cespitose; fertile spikes mostly 4, ovate, few-flowered, one sessile at the summit of the culm, the rest on radical peduncles and appearing subumbellate; fruit ovate, acuminate-rostrate, subpubescent, as long as the ovate acuminate glume.

HAB. Rocky grounds. N. Y. N. Eng. Penn. April, May. *Culm* 1—6 inches high. *Leaves* longer than the culm. *Spikes* 3—5, 6—8-flowered.

74. *C. miliacea* Muhl.: fertile spikes 3, slender and cylindrical, nodding, slender and filiform; fruit ovate, triangular, without nerves, slightly rostrate, orifice entire, as long as the ovate-lanceolate glume.

HAB. Wet grounds. Can. to Geor. May. *Culm* 15 inches high. *Spikes* 1—2 inches long.

75. *C. pallescens* Linn.: fertile spikes 2—3, ovate-cylindrical, dense, at length somewhat nodding; fruit obovate-oblong, obtuse; sheaths and culm pubescent.

HAB. Wet grounds. Mass. and N. Y. *Culm* a foot high, sulcate. *Fertile spikes* 2—3, elliptic, thick, pale green.

76. *C. hystericina* Willd.: sterile spike pedunculate; fertile 2—3, thick, at length cernuous, upper one inclusely pedunculate, the rest on exsert peduncles; fruit ovate, inflated, subhorizontal, many-nerved, rostrate, orifice bifid, twice as long as the oblong awned glume.

HAB. Wet grounds. Can to Geor. May. *Culm* 18 inches high, scabrous above. Plant yellowish-green.

77. *C. pseudo-cyperus* Linn. : fertile spikes 4, cylindrical, pedunculate, upper ones subgeminat; fruit oblong-lanceolate, rostrate, reflexed, many-nerved; apex divaricately bifid.

HAB. Swamps. Can. to Geor. June. *Culm* 2—3 feet high, thick, scabrous at the angles. *Spikes* 2 inches long, dense.

78. *C. limosa* Linn. : fertile spikes mostly 2, ovate or oblong-ovate, pedunculate, somewhat distant, pendulous; fruit suborbicular-elliptic, compressed, with a very short rostrum, (green,) orifice entire, as long as the ovate mucronate glume.—*C. lenticularis* Mich. Des.

HAB. Swamps. Arc. Amer. N. Y. and N. Eng. June. *Culm* 9—24 inches high, very smooth. *Glumes* variable in length, ovate or oblong, acuminate or cuspidate.

79. *C. hitchcockiana* Des. : sterile spike solitary, erect, peduncled; fertile ones mostly in threes, erect, pedunculate, lower one remote; flowers few and scattered; fruit subtriangular, oval, inflated, alternate both sides, recurved at the apex, striate, with a short truncate and open beak, nearly equal to the oblong or ovate mucronate scale.

HAB. Mountain woods. Mass. May. *Culm* 16—24 inches high, and with the leaves scabrous-pubescent. *Fertile spikes* 2—4. Plant dark green.—Allied to *C. laxiflora*, but distinguished by its fruit and rough pubescence.

** *Staminiferous spikes 2 or more.*

1. *With 2 stigmata.*

80. *C. cespitosa* Linn. : sterile spike subsolitary, (or geminate;) fertile mostly 3, cylindrical, obtuse, distant, the lower on a short exsert peduncle; bracts strict; fruit ovate, somewhat acute, densely fruited in about 8 rows; orifice minute, longer than the ovate (black and margined) glume; leaves spreading.

HAB. Mountain bogs. Can. to Penn. May. *Culm* 12—18 inches high. *Leaves* dark green. *Fruit* ovate, nerveless, green.

81. *C. crinita* Lam. : sterile spikes geminate, (sometimes androgynous;) fertile 4, distant, pendulous, cylindrical, dense; fruit roundish-ovate, ventricose, slightly rostrate, orifice entire, much shorter than the linear glume.

b. gynandra S. & T. : fertile spikes 3, oblong-cylindrical; fruit short-ovate, somewhat longer than the awned glume.

HAB. Swamps and meadows. Can. to Geor. June. *Culm* 2—4 feet high. *Leaves* pale green. *Spike* 2—3 inches long. *Var. b.* has the *culm* about a foot and the *fruit* yellowish when mature.

82. *C. acuta* Linn. : sterile spikes 1—3; fertile mostly 3, subpedunculate, somewhat nodding, cylindrical, remote; fruit oblong, entire at the orifice, as long as the oblong acute glume.

HAB. Wet grounds. Can. to Car. May. *Culm* 2 feet high, acutely triquetrous. *Leaves* subglaucous. *Glumes* brown.

83. *C. aquatilis* Wahl. : sterile spikes numerous or one erect, oblong, about 3-sided ; fertile mostly 3, on short peduncles, cylindric, thick-clavate-above, dense flowered, suberect, sometimes sterile at the apex ; fruit elliptic, sublenticular, smooth, with the orifice entire and protruded, about equal to the ovate acutish scale.

HAB. Bogs. Mass. May. *Culm* 20—30 inches, erect.—Close-ly allied to the preceding, but differs in its larger and thicker densely flowered spikes, in its broader leaves, its almost obtuse angled culm, and lighter colour.

2. *With 3 stigmas.*

84. *C. barrattii* Schw. & Torr. : sterile spikes subgeminate ; fertile about 3, oblong-cylindrical, sterile at the summit, nodding, distant ; fruit oblong, subtriquetrous, somewhat scabrous, orifice subentire ; a little shorter than the ovate lanceolate glumes ; leaves glaucous.

HAB. Sea coast. N. Y. May. *Culm* a foot high, rigid. *Leaves* very smooth and glaucous. *Glumes* dark brown.

85. *C. trichocarpa* Muhl. : sterile spikes 2—4, pedunculate, (sometimes sterile at the summit ;) fertile 3, distant, pedunculate, erect, oblong-cylindrical ; fruit ovate-lanceolate, acuminate, bicuspidate, hairy, longer than the ovate acuminate glume.

HAB. Swamps. Can. to Geor. May. *Culm* 3 feet high. *Fertile spikes* cylindric, thick.

86. *C. filiformis* Linn. : sterile spike geminate ; fertile 2, ovate-oblong, sessile, distant ; fruit elliptical, villous, bifurcate, as long as the ovate-lanceolate somewhat awned glume ; leaves convolute.

HAB. Bogs. N. Y. Mass. N. J. W. to Mich. *Culm* 2—3 feet high. *Leaves* mostly radical, 2—3 feet long, filiform above.

87. *C. vesicaria* Linn. : sterile spikes 3 ; fertile mostly 2, pedunculate, cylindrical ; fruit oblong, inflated, acuminate-rostrate, bicuspidate, longer than the lanceolate glume ; culm acutely triquetrous.

HAB. Meadows. N. Y. Penn. W. to Mich. May. *Culm* 2 feet high. *Spikes* dense, 2—3 inches long.

88. *C. ampullacea* Willd. : sterile spikes 3 ; fertile 2—3, cylindrical, short pedunculate, erect ; fruit subglobose, inflated, rostrate, bifurcate, longer than the lanceolate glume ; culm obtusely triangular.

HAB. Meadows. Mass. N. to Arctic Amer.

89. *C. retrorsa* Schw. & Torr. : sterile spikes about 3, lower one often fertile at the base ; fertile spikes about 5, approximate, (and clustered in a subcorymbose manner,) oblong-cylindrical, inclusely pedunculate, lowest one often remote ; fruit ovate, inflated, reflexed, rostrate, half as long as the lanceolate glume.

HAB. Near ponds. N. Y. and N. Eng. May. *Culm* 2 feet high. *Fertile spikes* thick. *Fruit* large.

90. *C. schweinitzii* Dew. : sterile spikes 2, upper one elongate, pedunculate ; fertile 3, oblong-cylindrical, subpendulous, rather remote,

inclusely pedunculate ; fruit oblong-ovate, acuminate-rostrate, inflated, bifurcate, longer than the lanceolate attenuate glume.

HAB. Wet sandy soil. N. Eng. and N. J. June. *Culm* a foot high, rather slender. *Spikes* pale straw colour.

91. *C. bullata* Schk. : sterile spikes 3 ; fertile 2, oblong-cylindrical, rather loose, exsertly pedunculate and somewhat nodding, distant ; fruit ovate-globose, inflated, erect, smooth, costate, rostrate-acuminate, orifice bifid, twice as long as the lanceolate glume.

HAB. Wet grounds. N. Y. Mass. Penn. *Culm* 18—24 inches high, slender, smooth. *Fertile spikes* remote, few-flowered.

92. *C. pellita* Muhl. : sterile spikes 2, oblong ; fertile 2, cylindrical, remote, erect, upper one sessile ; fruit ovate, subtriquetrous, short-rostrate, hairy, bicuspidate, equal to the oblong awned glume.

HAB. Wet grounds. Can. to Penn. May. *Culm* 2 1-2 feet high. *Leaves* rigid, flat, long.

93. *C. lacustris* Willd. : sterile spikes about 4 ; fertile 2—3, erect, oblong-cylindrical, short pedunculate ; fruit oblong, many-nerved, subrostrate, smooth, bifurcate, somewhat longer than the oblong mucronate glume.

HAB. Swamps, &c. Can. to Car. June. *Culm* 3—5 feet high. *Leaves* broad. *Fruit* brown.

94. *C. longirostris* Schw. & Torr. : sterile spikes 3, short ; fertile 2—3, cylindrical, loose, at length pendulous, long-pedunculate, subdistant ; fruit ovate, subglobose at the base, smooth, bifid, rostrum very long, longer than the lanceolate glume.

HAB. Wet meadows. N. Eng. W. to Mich. Gray. *Culm* 2 feet high. *Fertile spikes* on filiform exsert peduncles.

CELLULARES, OR FLOWERLESS PLANTS.

PLANTS without flowers and spiral vessels, composed chiefly of cellular tissue—ACOTYLEDONES, *Juss.*—CRYPTOGAMOUS OR ÆTHEOGAMOUS PLANTS of *Authors.*

DIV. I. FILICOIDEÆ, OR FERN-LIKE PLANTS.

OBS. The following account of our Filicoid plants is the result of long and attentive study. In addition to my own collection, which embraces most of the American, and many foreign species, I have carefully examined the specimens in the herbarium of Muhlenberg, and in that of Mr. Schweinitz, which were generously loaned to me by that gentleman. I have also received specimens from friends in different parts of our country, especially from Dr. Asa Gray, N. Y., Dr. T. R. Ingalls, Louisiana, Prof. Hitchcock, Mass. To Dr. A. F. Holmes, of Montreal, I am indebted for an almost entire suite of Canadian ferns.

ORDER CXL. EQUISETACEÆ. *De Cand. Lind.*

Fructification in terminal spikes, composed of peltate several-sided scales, producing on their inner surface 4—7 elongated involucres, which contain the seeds. *Seeds or sporules* numerous, globose, surrounded by four elastic clavate filaments, which are dilated at the extremity.

Leafless plants, with whorled branches. *Stem* fistular, jointed; the joints separable and surrounded by membranous toothed sheaths.—The cuticle abounds in silex.

1. EQUISETUM. *Linn.*

OBS. The only genus of the order; the character therefore need not be repeated.

1. *E. palustre* *Linn.*: stems deeply furrowed, smooth, branched; branches simple, 5-sided, curved upwards; sheath subappressed, distant, cut at the apex into 10 fuscous teeth; spike oblong, blackish.

HAB. Swamps. Arc. Amer. to Vir. May, June. 2f.—*Stems* 12—18 inches high, deeply sulcate and roughish; *branches* whorled and nearly erect. *Spike* an inch long, slender and blackish.

2. *E. sylvaticum* Linn.: branches of both the fertile and sterile stems compound, scabrous, curved downwards, 3- or 4-sided; sheath loose, deeply cleft into membranous segments.

HAB. Low grounds. N. S. N. to Arc. Amer. May. 2f.—*Stems* 12—18 inches high.—Well characterized by its 4 or 5 whorls of compound branches.

3. *E. hyemale* Linn.: stems all simple, erect, very rough, naked, bearing spikes at the apex; sheaths short, whitish, black at the base and apex; teeth awned, at length caducous.

HAB. Woods and marshes. Can. and N. S. W. to Miss. June, July. 2f.—*Stems* simple, 1—2 feet high, naked, furrowed, terminating in an oval head. *Sheaths* nearly equidistant, about 2 inches apart. *Scouring Rush.*

4. *E. limosum* Linn.: stems branched upwards, (sometimes simple;) branches simple, short, 5-sided, smooth; spike oblong or ovate; sheaths appressed.—*E. uliginosum* Willd. Pursh.

HAB. Borders of swamps. N. S. July. 2f.—*Stems* 2—3 feet high, erect, simple or with a few whorls of branches at the top. *Sheaths* numerous, short, with 15—20 narrow acute teeth. *Spike* brown, scarcely an inch long.

5. *E. fluviatile* Linn.: sterile stems branching, somewhat scabrous; branches numerous, angled; fertile ones with broad sheaths; teeth long, cuspidate.—*E. telmateia* Ehrh.

HAB. Buffalo, N. Y., and the shores of Lake Superior. Torr. 2f.—*Fertile stems* appearing first, a foot high. *Sterile stems* 2—5 feet high, with numerous joints and many long verticillate branches. *Spike* oblong.

6. *E. arvense* Linn.: sterile stems somewhat decumbent, with simple, square and scabrous branches; fertile ones erect, simple; sheaths incisely toothed, cylindrical; teeth acute.

HAB. Moist grounds. N. S. N. to Arc. Amer. April, May. 2f.—*Fertile stems* appearing first, 6—8 inches high, with large ovate brownish spikes. *Sheaths* 3—5, swelling, whitish at base, ending in 6—8 long acute teeth. *Sterile stems* a foot or more high, jointed, with whorls of ascending branches, which are 3 or 4-cornered.

7. *E. variegatum* Smith: cespitose; stems somewhat branched at base, naked, filiform, scabrous, bearing a blackish spike at the top; sheaths 3-toothed, blackish; teeth membranaceous, lanceolate, whitish, deciduous at the tips.—*E. scirpoides* Mich. Pursh.

HAB. Woods on high grounds. Can. and N. S. N. to Arc. Amer. July. 2f.—*Stems* 3—6 inches high, many from the same root, simple, filiform, 5-sided. *Spike* small, ovate, blackish.—Our plant differs in no respect from the foreign, except in its smaller size.

ORDER CXLI. FILICES. *Juss. Lind.*

Fructification only of one kind on the same individual. *Capsules* spiked or racemed, or mostly collected into clusters of various shapes (*sori*) upon the back of the *leaf* or *frond*, naked or covered with an *involucre*, often surrounded by an elastic *ring* and opening irregularly, or without a ring and opening with a regular *fissure*. *Seeds* or *sporules* minute.

Leafy plants with a horizontal *stem* or *caudex* (*rhizoma*.) *Fronds* before expansion, circinate, simple or variously branched and divided.

DIV. I. POLYPODIACEÆ. *Capsules furnished with a vertical usually incomplete ring, bursting irregularly and transversely.*

1. POLYPODIUM. *Linn.*

Sori roundish, scattered on various parts of the lower surface of the frond. *Involucre* none.

* *Frond pinnatifid.*

1. *P. vulgare* *Linn.*: frond smooth, deeply pinnatifid; segments oblong-obtuse, slightly serrate, the upper ones becoming gradually smaller; *sori* solitary—and *P. virginianum* *Willd.*

HAB. Rocky woods. Arc. Amer. to Car. W. to Miss. July. 2l.—Fern 6–10 inches high. Root creeping, clothed with brownish chaffy scales. Stipe smooth. *Sori* large, in double rows, yellowish, at length dark coloured.

** *Frond bipinnatifid.*

2. *P. hexagonopterum* *Mich.*: frond bipinnatifid, rather smooth, the lower divisions deflexed; segments lanceolate, obtuse, ciliate; lower ones deeply crenate; upper ones very entire; the lowest adnate-decurrent; *sori* minute; stipe smooth.

HAB. Moist woods. Can. to Car. July. 2l.—Fern 12–18 inches high. Frond forming a triangle in its circumference, connected by a sort of hexagonal membrane; the 2–3 lower divisions often deflected. *Sori* very minute.

3. *P. phegopteris* *Linn.*: frond bipinnatifid, the two lower divisions deflexed; segments linear-lanceolate, obtuse, entire, ciliate, the lowermost ones adnate-decurrent; veins hairy; *sori* solitary, marginal.—*P. connectile* *Willd.* and the American authors.

HAB. Shady woods. Throughout the U. S. July, Aug. 2l.—A careful comparison of specimens has satisfied me that our plant is not distinct from the foreign one. It differs from the preceding in having a chaffy stipe and larger *sori*. The whole fern also is smaller.

*** *Frond ternate, bipinnate.*

4. *P. dryopteris* Linn. : frond ternate, bipinnate, spreading and deflexed; segments obtuse, somewhat crenate; sori marginal; root filiform, creeping.

HAB. Hanover, N. H. *Big. Arc. Amer.*; rare. July. 2f.—Fern a foot high. Root black, creeping and slender. Stipe slender, smooth and erect. Frond drooping, tender and of a light green colour.—Often confounded with the next, from which it is distinct.

5. *P. calcareum* Smith: frond ternate, bipinnate, erect, rather rigid; segments somewhat obtuse, subentire; sori marginal, confluent.—*Nephrodium dryopteris* Mich.

HAB. Wet shady grounds. Can. to Penn. July. 2f.—Differs from the preceding in its more rigid habit, its somewhat duller green and paler confluent sori, as was first shown by Sir J. E. Smith. Mr. Charles S. Parker, of Liverpool, a very accurate botanist, informs me that *P. dryopteris* and *calcareum* are found in one locality, near Matlock, (Eng.) and that they preserve their distinct characters in cultivation.

2. ONOCLEA. Linn.

Capsules covering the whole lower surface of the frond. *Involucre* formed of the frond turned inwards, resembling a berry, opening but not expanding.

1. *O. sensibilis* Linn. : sterile fronds pinnate; pinnæ lanceolate, acute, lacinate, upper ones united; fertile fronds bipinnate, resembling a compound spike, with recurved globular segments; rachis smooth.

HAB. Moist woods. Can. to Flor. July. 2f.—Fronds several, 12—18 inches high, with a long and smooth stipe; the fertile ones very narrow.

2. *O. obtusilobata* Schk. : sterile fronds pinnate; pinnæ opposite, pinnatifid; segments rounded, lower ones gradually smaller, upper ones united; fertile fronds bipinnate; pinnules incised, recurved-globose, villose; stipe scaly.—*O. sensibilis* var. *obtusilobata* Torr.

HAB. Low grounds. Penn. *Pursh.* N. Car. *Schweinitz.* July. 2f.—Smaller than the preceding, and has the pinnæ opposite, with rounded segments.—Mr. Schweinitz considers it quite distinct.

3. ASPIDIUM. Swartz.

Sori roundish or elliptical, scattered. *Involucre* roundish or kidney-shaped, umbilicated or opening on one side.

* *Frond pinnate.*

1. *A. acrostichoides* Willd. : frond pinnate; pinnæ lanceolate, falcate, acute, ciliate-serrate, auricled at the upper angle of their base,

subsessile, upper ones smaller and alone fertile ; sori at length confluent ; stipe and rachis chaffy. — *Nephrodium acrostichoides* Mich.

HAB. Rocky and low shady places. Can. to Car. W. to Miss. June—Aug. 2f.—Fern 12—18 inches high. *Stipe* short, pale and with the *rachis* chaffy. *Fron*d long, pale green. *Sori* in a single or double row, at length confluent.

2. *A. schweinitzii* Beck : frond pinnate ; pinnæ linear-lanceolate, falcate, doubly serrate, auricled at the upper angle of their base ; sori on the upper pinnæ, distinct, in two rows, one on each side of the midrib.

HAB. N. J. *Schweinitz*. Near Philadelphia. *Conrad*.—Fern larger than the preceding and differing considerably in its appearance. *Pinnæ*, especially the lower ones, deeply and doubly dentate-serrate, the teeth or serratures armed with stiff bristles. *Sori* continuing perfectly distinct.—Nearly allied to *A. auriculatum* of *Swartz*, and may be the same as that mentioned by Sir J. E. Smith under the description of that plant, (*Rees' Cycl. Supp. art. Aspidium*,) said to have been brought from the N. W. Coast by *Menzies*.

** *Fron*ds bipinnatifid.

3. *A. thelypteris* Willd. : frond pinnate ; pinnæ lanceolate, deeply pinnatifid, distinct, but sometimes crossing each other at base ; segments oblong, acute, somewhat crenate, ciliate ; sori marginal, at length confluent.

HAB. Wet woods and swamps. Can. and N. S. July. 2f.—Fern a foot or more high. *Root* creeping. *Stipe* smooth ; *rachis* and midrib often a little hairy. *Fron*d lanceolate, deep green and delicate.

4. *A. noveboracense* Willd. : frond pinnate ; pinnæ linear-lanceolate, deeply pinnatifid ; segments oblong, obtuse, entire, ciliate ; sori marginal ; stipe smooth.—*A. thelypteroides* *Swartz*.—*Nephrodium thelypteroides* Mich.

HAB. Damp woods. Can. to Car. July. 2f.—Fern about the size of the last but of a more rigid habit. Segments of the *pinnæ* usually quite entire and obtuse. *Sori* at length confluent and partly covered by the margin of the frond.—Closely resembles the preceding, from which it may still not be distinct.

5. *A. cristatum* Willd. : frond pinnate, nearly bipinnate, lanceolate-ovate ; pinnæ subcordate, oblong, pinnatifid ; segments oblong, obtuse, dentate-serrate ; stipe scaly.—*Nephrodium cristatum* Mich.

HAB. Moist grounds. Can. and N. S. July. 2f.—Fern a foot or more high. *Fron*d pale green, with a lanceolate-ovate outline. *Sori* large, in double rows, tawny when mature, mostly on the upper half of the frond.

6. *A. lancastriense* *Spreng.* : pinnæ subopposite, lower ones triangular-ovate ; segments toothed ; stipe nearly naked.

HAB. Woods. N. Y. Mass. N. J. ; not common. July. 2f.—Fern 18—24 inches high. *Stipe* nearly smooth. *Fron*d large, much narrower and more rigid than in the preceding ; it is also

of a darker green. *Sori* large, distinct, very dark when mature.

7. *A. goldianum* Hook.: frond pinnate; pinnae deeply pinnatifid, lanceolate, acuminate; segments oblong, subacute, somewhat falcate, mucronate-serrate; sori in rows, one between the midrib and either margin of the segments.—*A. filix mas* Pursh.

HAB. Woods. Can. and N. S. July. 2f.—Fern 1 1-2—3 feet high.—Resembles *A. cristatum* more than any of our species, but can at once be distinguished by the greater breadth of the frond, giving it a different outline, and by the form of the pinnae, which are never broader at base; the segments also are longer and narrower, and slightly falcate.

*** *Fronde bipinnate.*

8. *A. fragile* Willd.: frond bipinnate; pinnules oblong, rather obtuse, incisely serrate or subpinnatifid; segments subentire; rachis winged; stipe chaffy at base.—*A. tenue* Pursh.—*A. atomarium* Willd.—*Cyathea fragilis* Smith.—*Nephrodium tenue* Mich.—*Athyrium fragile* Richardson.

HAB. Moist rocks. N. Y. Ver. Mass. N. to Arc. Amer. June, July. 2f.—A beautiful little fern, growing in lax tufts, 6—14 inches high. *Stipe* long and slender, dark coloured and a little chaffy at base. *Frond* delicate, deep green. *Pinnules* very variable in shape and in their divisions, some being quite acute, others obtuse and wedge-shaped. *Sori* large, numerous, pale, near the margins of the segments. *Involucre* somewhat cyathiform, at length lacerate and reflexed.—Our plant agrees precisely with the foreign, and I have no doubt of their identity.

9. *A. marginale* Willd.: frond bipinnate; pinnae lanceolate; pinnules oblong, obtuse, decurrent, crenate, lower ones almost pinnatifid at base; sori marginal; stipe chaffy.—*Nephrodium marginale* Mich.

HAB. Rocky woods. Can. to Car. July. 2f.—Fern 12—18 inches high. *Stipe* chaffy especially near the root. *Frond* light green, the upper part only fruit-bearing. *Involucre* orbicular, with a lateral sinus.

10. *A. spinulosum* Willd.: frond bipinnate; pinnules oblong, decurrent, with deep cut prickly serratures; involucre orbicular, with a lateral sinus—and *A. aculeatum* Pursh.?

HAB. Shady woods. Penn. to Vir. July. 2f. Pursh.—*Stipe* long, scaly at the lower part. *Frond* broad, with the segments decurrent so as to form a border to the partial rachis. *Sori* small and rather distinct.—Doubtful as an American plant.

11. *A. dilatatum* Willd.: frond bipinnate; pinnules oblong, distinct, incisely pinnatifid; segments mucronate-serrate; stipe chaffy and *A. intermedium* Willd. Muhl.

HAB. Shady woods. Can. and N. S. July. 2f.—Fern 1—2 feet high. *Stipe* long and chaffy. *Frond* varying in the division of the pinnae, being sometimes scarcely bipinnate, but sometimes almost tripinnate. *Sori* numerous, rather large, distinct, brownish when mature.

12. *A. bulbiferum* Willd. : frond bipinnate, lanceolate, attenuate above; segments opposite, oblong, obtuse, serrate, the lower ones pinnatifid; rachis bearing bulbs; sori minute.—*Nephrodium bulbiferum* Mich.

HAB. Wet rocks. Can. and N. S.; common. July. 2f.—Fern 12—18 inches high. *Stipe* smooth, pale. *Fron*d narrow, much attenuated at the summit, fine green and smooth.

13. *A. filix femina* Willd. : frond bipinnate; pinnules oblong-lanceolate, incisely serrate; serratures few-toothed, somewhat acute; sori oblong, straight.—*Asplenium filix-femina* Spreng.

HAB. Low shady grounds. Can. to Vir. Pursh. Bethlehem, Penn. and N. W. Terr. Schweinitz. July. 2f.—Fern growing in tufts, 1 1-2—2 feet high. *Fron*d with the general outline oblong-lanceolate. *Sori* small, one on each segment of the pinnules, inserted laterally into its minute midrib, oblong and straight, but at length by the pushing back of the involucre becoming kidney shaped and appearing nearly round, but always remaining distinct.

14. *A. asplenoides* Willd. : frond bipinnate; pinnules linear-lanceolate, incisely serrate; serratures 2—3-toothed; sori oblong, lunate, at length confluent.—*Nephrodium asplenoides* Mich.—*Asplenium athyrium* Spreng.

HAB. Shady woods. Throughout the U. S. and Can. July. 2f.—Resembles the preceding, but has a broader outline, and has the *sori* longer and lunate and parallel to each other, giving it the appearance of an *Asplenium*. The *involucre* is larger and remains firmly attached to the frond, &c.

15. *A. angustum* Willd. : frond bipinnate; pinnules lanceolate, incisely-serrate; serratures sub-bidentate; lower tooth longer; sori oblong lunulate; *stipe* smooth.—*Nephrodium filix femina* Mich.—*Asplenium michauxii* Spreng.

HAB. Shady woods. Can. to N. Car. July. 2f.—Though allied to the two preceding, this appears to be a good species. The *frond* is smaller, being seldom more than a foot high; it has also a narrower outline.—Dr. Hooker, however, considers it a narrow-fronded variety of *A. filix femina*.

4. WOODSIA. Brown.

Sori roundish, scattered, having beneath an *involucre* which is cut at the edge into many capillary segments.

1. *W. ilvensis* Brown: frond pinnate; pinnæ lanceolate, deeply pinnatifid, with numerous nearly uniform oblong segments.—*Polypodium ilvense* Willd.

HAB. Rocky banks of streams. Can. and N. S. June. 2f.—Fern 4—6 inches high, in dense tufts. *Stipe* brownish and scaly below. *Fron*d oblong or lanceolate; pinnæ about 12, alternate.—This is not the *W. ilvensis* of Pursh.

2. *W. hyperborea* Brown: frond pinnate; pinnæ somewhat obovate,

rounded, pinnatifid; segments rounded, unequal.—*Polypodium hyperboreum* Willd.

HAB. Rocks. Can. and N. S. July. 2f.—Resembles the preceding, but is sometimes quite small, and differs in having the pinnæ as well as the segments more rounded and less deeply pinnatifid, except at their base, where the bottom pair of segments are often so deeply separated as to form two little pinules.

3. *W. rufidula* Beck.: frond bipinnate; pinnales hairy, oblong, obtuse, pinnatifid, with obtuse segments; sori at length confluent; stipe and rachis hairy.—*Aspidium rufidulum* and *Woodsia ilcensis* Pursh.—*Nephrodium rufidulum* Mich. *Woodsia ilcensis*? Big. *Richardson's App.*

HAB. Rocks. Subarc. Amer. to Car. July. 2f.—Fern 6—8 inches high. *Stipe* dark brown, densely clothed with lighter coloured woolly hairs. *Frond* decidedly bipinnate in full grown specimens, hairy on both sides.—The *W. ilcensis* and *hyperborea* of Brown resemble each other closely. This differs from both in its bipinnate frond and in its hairy instead of scaly stipe, rachis and frond.

4. *W. perriniana* Hook. & Grev.: minutely glandular-pilose; frond bipinnate; pinnales pinnatifid; segments rounded, bidentate; sori submarginal; involucre subhemispheric, at length with dentate spreading segments; spike somewhat chaffy.—*Alsophila perriniana* Spreng.—*Hypopeltis obtusa* Torr. *Aspidium obtusum* Willd. Pursh.

HAB. Rocks. N. Y. to Car.; rather rare. July. 2f.—Fern 8—10 inches high, erect. *Stipe* straw coloured. *Sori* at length much crowded together.—Habit similar to the *Woodsias*, “and except that the involucre is larger in proportion to the sorus, and that in the young state it covers more fully the capsule, and is not margined with hairs, there is not a difference even in the characters of the fructification.”—Hook. & Grev. *Icon. Filic.*

5. ASPLENIUM. Linn.

Sori linear, transverse, scattered. *Involucre* arising from the lateral veins and opening towards the central *nerve* or rib.

* *Frond undivided.*

1. *A. rhizophyllum* Willd.: frond lanceolate, stipitate, subcrenate, auriculate-cordate at base, the point very long filiform and rooting.

b. *pinnatifidum* Muhl.: fronds pinnatifid at base; lobes roundish-ovate; the lower ones crenate.—*A. pinnatifidum* Nutt.

HAB. Wet rocks. Can. to Car. July. 2f.—*Fronds* several from the same root, 6—10 inches long, somewhat triangular, with a very long and linear point, which is bent to the ground and strikes root. Var. b. passes into the former by scarcely perceptible variations.

** *Frond pinnate.*

2. *A. angustifolium* Mich.: frond pinnate; pinnæ alternate, upper ones subopposite, linear lanceolate, serrate towards the point, some-

what repand, the base truncate on the upper side, rounded on the lower.

HAB. Moist woods. Can. and N. S. July. 2f.—Fern 12—18 inches high. *Sterile fronds* forming a circle with the fertile ones smaller and central. *Sori* diverging like veins from the midrib, at length confluent.

3. *A. ebeneum* Willd.: frond pinnate; pinnæ sessile, lanceolate, somewhat falcate, serrate, auricular on the upper side of their base; spike smooth and polished.—*A. trichomanoides* Mich.—*A. polypodioides* Swartz. Muhl.

HAB. Rocky woods. Can. to Car. July. 2f.—Fern 6—10 inches high. *Stipe* brown, polished, slender and simple. *Fron*d narrow, pale green, smooth. *Sori* in short diverging lines, arranged in a double row.

4. *A. trichomanes* Linn.: fronds pinnate; pinnæ roundish-oblong, obtuse, crenate, the base truncate and somewhat cuneate; stipe smooth and dark coloured—and *A. melanocaulon* Willd.

HAB. Shady rocks. Can. to Car. July. 2f.—A delicate fern 4—8 inches high. *Stipe* shining, blackish-purple. *Fron*d dark green. *Sori* linear, 5—6 to each pinnule, becoming roundish when old.—Distinguished from the preceding by its smaller size and by having the pinnæ roundish, and acute at base.

*** *Fron*d bipinnatifid.

5. *A. thelypteroides* Mich.: frond pinnate; pinnæ lanceolate, sessile, acuminate, pinnatifid; segments oblong, obtuse, denticulate.

HAB. Shady banks of streams. Can. to Car. July. 2f.—Fern 1—2 feet high. *Stipe* smooth, not coloured. *Fron*d ovate, fine green; pinnæ long, pinnatifid. *Sori* oblong and oblique, forming two rows, one on each side of the partial ribs.—Resembles *Aspidium thelypteris*.

**** *Fron*d bipinnate.

6. *A. ruta-muraria* Linn.: frond bipinnate at the base, simply so at the top; segments rhomboid-wedge-shaped, obtusely denticulate at the extremity.

HAB. Rocks. N. Y. to Car.; not common. July. 2f.—A small fern growing in tufts, 2—4 inches high. *Fron*d spreading, rather rigid, glaucous green, bi- and tri-pinnate. *Sori* linear, slightly oblique, at length darker and confluent.

7. *A. montanum* Willd.: frond smooth, bipinnate; pinnules oblong-ovate, pinnatifid; segments 2—3 toothed at the apex.—*A. adiantum nigrum* Mich.

HAB. Mountain rocks. Bethlehem, Penn. S. to Car. Schweinitz. July. 2f.—A fern growing in tufts, 4—8 inches high. *Fron*d having a narrow outline, mostly bipinnate; but more or less divided according to its size. *Sori* linear, at length confluent.—Differs from the foreign *A. adiantum nigrum* in being much smaller, and in having the segments more obtuse.

6. WOODWARDIA. *Smith.*

Sori oblong, distinct, parallel with the ribs of the frond on either side. *Involucre* superficial, arched, separating towards the rib.

1. *W. monocleoides* Willd. : sterile frond pinnatifid ; segments lanceolate, repand, slightly serrulate ; fertile frond pinnate ; segments linear, entire, acute.—*W. angustifolia* Smith. Muhl.

HAB. Swamps. Can. to Flor. ; not common. Aug. 24.—Fern a foot high, growing in tufts. *Frond* lanceolate, tapering at the top. *Sori* a 1-4 of an inch long, at length nearly covering the back of the pinnæ.

2. *W. virginica* Willd. : frond very smooth, pinnate ; pinnæ sessile, lanceolate, pinnatifid ; sori in interrupted lines near the midrib of the pinnæ and segments.—*W. banisteriana* Mich.

HAB. Swamps. N. Y. to Geor. July. 24.—Fern 2 feet high. *Stipe* smooth. *Frond* having a lanceolate outline, light green, with the segments acute and falcate. *Sori* in double lines, at length confluent.

7. SCOLOPENDRIUM. *Smith.*

Sori linear, transverse, scattered. *Involucre* double, occupying both sides of the *sorus*, superficial, at length opening longitudinally.

S. officinarum Willd. : frond simple, ligulate, entire, cordate at base.—*Asplenium scolopendrium* Linn.

HAB. Shady woods among loose rocks near Onondago, N. Y. Pursh. July. 24.—*Frond* suberect, on rather a short stipe, 8—15 inches long, 2—3 wide, fine green, paler beneath. *Sori* 1-2 to 3-4 of an inch long, oblique to the midrib.—Pursh could hardly have been mistaken in this plant, and yet it is singular that it has never been found in our country by any other botanist.

8. PTERIS. *Linn.*

Sori in a continuous marginal line. *Involucre* formed of the inflected margin of the frond, opening inwards.

1. *P. atropurpurea* Linn. : frond pinnate ; lower divisions ternate or pinnate ; segments lanceolate, obtuse, very entire, obliquely truncate or subcordate at base.

HAB. On rocks. N. Y. to Car. July. 24.—Fern 6—10 inches high. *Stipe* purple or dark brown, villous. *Frond* light green on the upper surface, grayish beneath. *Sori* marginal, conspicuous.

2. *P. gracilis* Mich. : frond pinnate ; pinnæ lanceolate, obtuse, alternate, sessile, lower ones pinnatifid ; fertile ones entire ; sterile ones crenate, round-obtuse.—*Cheilanthes gracilis* Spreng.

HAB. On rocks. Can. and N. S. Aug. 24.—Smaller and of a much more delicate habit than the last. *Frond* with the *stipe* 4—6 inches high, smooth and shining.—Specimens of this plant which I found in abundance on the rocks near Whitehall, N. Y., were collated by Dr. Hooker and determined to be the true *P. gracilis*, and he also remarks that he cannot comprehend why Kaulfuss and Sprengel should make it a *Cheilanthes*.

3. *P. aquilina* Linn. : frond 3-parted ; branches bipinnate ; pinnæ linear-lanceolate, lower ones pinnatifid, upper ones undivided ; segments oblong, obtuse.

HAB. Dry woods. Can. to Flor. July. 24.—Fern 2—6 feet high, according to the soil. *Stipe* angular, dark coloured and polished, dividing into large opposite branches. *Frond* very large, pale green.—Dr. Hooker thinks that the plant which passes under this name among our botanists is the next.

4. *P. caudata* Linn. : frond pinnately 3-parted ; sterile divisions bipinnate, with the segments linear, long, obtuse, and very entire ; fertile divisions pinnate ; segments rather remote, the lower ones pinnatifid, dentate at the base.

HAB. Rocky woods near streams. Penn. to Car. Pursh. Aug. If Dr. Hooker's opinion is correct, this species is very common in the N. S.

9. ADIANTUM. Linn.

Sori oblong or roundish, marginal. *Involucre* membranaceous, arising from distinct portions of the frond turned in, opening inwards.

A. pedatum Linn. : frond pedate ; divisions pinnate ; pinnæ oblong, somewhat lunate, with the upper margin incised ; sori linear, stipe smooth.

HAB. Shady woods. Can. to Vir. Louis. Raf. July. 24.—Fern 1—2 feet high, easily known by its long slender black and highly polished *stipe*, and its pedate nearly horizontal *frond*.

10. CHEILANTHES. Swartz.

Sori roundish, distinct, situated at the margin of the frond. *Involucre* of membranous distinct inflexed scales, opening inwards.

C. vestita Willd. : frond bipinnate, hairy on both sides ; pinnules pinnatifid ; segments rounded, oblong, very entire ; stipe and rachis hairy.

HAB. Rocks. Penn. to Car. W. to Rocky Mountains. July. 24.—Fern 6—8 inches high, and covered with long brownish hair. *Sori* at length contiguous.

11. HYMENOPHYLLUM. Smith.

Sori in separate spots at the margin of the frond. *Capsules* sessile, inserted on a common cylindrical receptacle, within a

2-valved *involucre* of the same texture as the frond; *valves* plane, outer one free.

H. ciliatum Smith: frond pinnate; lower divisions larger; upper ones gradually smaller, pinnatifid; segments linear-obtuse, bifid, ciliate, hairy on the veins; stipe and rachis winged and ciliate.—*Trichomanes ciliatum* Swartz.

HAB. Trunks of trees in shady places. Penn. and Vir. 2f.—Pursh.

12. STRUTHIOPTERIS. Willd.

Capsules densely covering the back of the frond. *Involucre* scaly, marginal, opening internally.

S. germanica Willd.: sterile fronds pinnate; pinnæ pinnatifid, sessile; segments entire, rather acute; the lower ones somewhat elongated—and *S. pennsylvanica* Willd.—*Onoclea struthiopteris* Swartz.—*O. nodulosa* Schk. Mich.

HAB. Low grounds. Can. and N. S. July. 2f.—One of our largest ferns, the *sterile fronds* being often 3 feet high and arranged in a circular form, with a few much smaller *fertile* ones in the centre.—I think there can be no doubt of the identity of our plant with the foreign *S. germanica*.

13. DICKSONIA. L'Herit.

Sori punctiform, marginal, roundish and distinct. *Involucre* double; outer one superficial, opening outwards; the other marginal and opening inwards.

D. pilosiuscula Willd.: frond bipinnate; pinnules decurrent, oblong-ovate, pinnatifid segments incisely dentate; *sori* solitary, minute; stipe and rachis hairy.—*D. pubescens* Schk.—*Nephrodium punctilobum* Mich.—*Aspidium punctilobum* Willd. Pursh. Torr.

HAB. Shady places. Can. to Vir.; common. July. 2f.—Fern 2—3 feet high, growing in tufts, of a delicate habit. *Stipe* nearly smooth below, but becoming hairy as it passes into the rachis. *Frond* large and long, lanceolate, somewhat acuminate, yellowish-green. *Sori* solitary, minute, near the divisions of the segments.—A true *Dicksonia*.

DIV. II. OSMUNDAEÆ. *Capsules* destitute of a ring, reticulated, striated with rays at the apex, opening lengthwise and usually externally.

14. OSMUNDA. Linn.

Capsules subglobose, pedicelled, radiate-striate, or wrinkled, 2-valved, with a hinge at the joining of the valves, either occupying the lower surface of the contracted frond, or disposed in the shape of a raceme or panicle. *Involucre* none.

* *Leafy frond bearing fruit.*

1. *O. claytoniana* Linn.: frond pinnate; pinnæ pinnatifid, with smaller fertile ones at the top.

HAB. Wet grounds. Cambridge, N. Y. *Stevenson*. Penn. *Conrad*. May. 2f.—*Frond* 12—18 inches high; pinnæ obtuse, tomentose at the axils; segments entire. *Fruit* terminal, bipinnately paniced, erect, ferruginous.—Identified by Muhlenberg with *O. interrupta* Mich., and by Pursh with *O. cinnamomea*. From the former it differs in having the fructification terminal, and from the latter by having the pinnæ more obtuse, the segments closer and not so deep, and by not being lanuginous. See *Conrad in Jour. Phil. Acad.* vi. 39.

2. *O. interrupta* Mich.: frond pinnate, smooth; pinnæ nearly opposite, pinnatifid; segments oblong, subacute, entire; some of the intermediate pinnæ fruit-bearing.

HAB. Low grounds. Can. to Vir. June. 2f.—*Fern* 1—2 feet high. *Frond* with 2 or 3 central pairs of pinnæ fertile dark brown and shorter than the sterile ones.

3. *O. spectabilis* Willd.: frond bipinnate, all fruit bearing at the summit; pinnules oblong, distinct, serrulate; raceme very large, decompound.—*O. regalis* Mich. Torr.

HAB. Low grounds and swamps. Can. to Flor. July. 2f.—*Fern* 3—4 feet high, of a grayish colour, with numerous spreading branches.—Differs from the foreign *O. regalis* by its being smaller, and of a more rigid texture, and by the distinct petiolation of the pinnules which are not lobed at base.

** *Fertile fronds separated.*

4. *O. cinnamomea* Linn.: sterile frond pinnate; pinnæ pinnatifid; segments ovate-oblong, obtuse, very entire; fertile frond bipinnate, woolly, contracted; stipe woolly.

HAB. Low grounds. Can. to Flor. Aug. 2f.—*Sterile fronds* from 2—5 feet high, arranged in bundles or circles, with a few much smaller fertile ones in the midst.

15. LYGODIUM. *Swartz.*

Capsules sessile, ovate, in 2-ranked little spikes, which issue from the margin of the frond, radiate-striate, or wrinkled, opening on the inner side, from the base to the summit. *Involucre* scale-like, covering each capsule.

L. palmatum Swartz.: stem flexuous and climbing; fronds conjugate, cordate, palmate, with 5 lobes; lobes entire, obtuse; spikelets oblong-linear, in a compound terminal spike.—*Hydroglossum palmatum* Willd. Pursh.—*Cteisium paniculatum* Mich.

HAB. Low woods. Mass. to Car.; rare. July. 2f.—*Stem* climbing, 3—4 feet long, smooth and slender. *Petioles* alternate, forked at a short distance from the stem, and supporting 2 leaves or fronds, which are divided into 5—9 oblong obtuse

lobes. *Fertile fronds* variously divided into small linear segments, with the sori in 2 imbricated rows.

16. SCHIZEA. *Smith.*

Spikes unilateral, flabellate, aggregate. *Capsules* with radiating furrows at the top, somewhat turbinate, bursting laterally, sessile. *Involucre* continuous, formed of the inflexed margin of the spikes.

S. pusilla Pursh: frond simple, linear-compressed, tortuous; spikes few, conglomerated at the summit of a long slender stipe.—*S. tortuosa Muhl.*

HAB. Pine barrens near Quakers' Bridge, N. J. Aug. 24.—A very small fern, with numerous cespitose fronds, which are about 2 inches long. Stipe 3—5 inches long, filiform, with a few brownish secund spikes.—It has been found in Newfoundland and in the Falkland Islands, but the only intermediate locality known is that of N. J.—*Cooper in Ann. N. Y. Lyc. ii. 266.*

DIV. III. OPHIOGLOSSÆ. *Capsules* of one cell, adnate at the base, subglobose, coriaceous, opaque, destitute of a ring, not cellular, (sometimes connate,) half 2-valved.

17. OPHIOGLOSSUM. *Linn.*

Capsules round, smooth, 1-celled, 2-valved, transversely opening, disposed upon an articulated 2-ranked spike.

1. *O. vulgatum Linn.*: spike cauline; frond simple, oblong-ovate, obtuse, closely reticulate.

HAB. Low woods. N. S. June. 24.—Fern smooth and succulent, 6—8 inches high, bearing a single entire sessile frond. Spike about an inch long, on a slender peduncle.—Dr. Gray has found 2 or 3 specimens of a fern which resembles this in its specific character, but is scarcely 2 inches high. It may prove on further examination to be a distinct species. If so, I would propose for it the name of *O. Grayi*.

2. *O. bulbosum Mich.*: spike cauline, short; frond subcordate, ovate, somewhat obtuse; root bulbous.—*O. crotalophoroides Walt.*

HAB. Low grounds. N. J. to Car. May. 24.—Fern 6 inches high. Frond 1 1-2 inch long and an inch broad, reticulate.

18. BOTRYCHIUM. *Swartz.*

Capsules subglobose, 1-celled, 2-valved, distinct, sessile, smooth, coriaceous, disposed in spikes or racemes, opening transversely.

1. *B. simplex Hitchcock*: scape with one frond above; frond ternate, pinnatifid; segments cuneate, obovate, incised.

HAB. Dry woods. Can. N.Y. & Mass. June. 24.—Fern 2—6 in.

ches high. *Frond* solitary, from a torn membranaceous sheath, divided into 3 or 4 unequal segments or pinnatifid; the segments often much cut. *Spike* subcompound, unilateral and interrupted.—See *Hitchcock in Sill. Jour.* vi. 103.

2. *B. fumarioides* Willd.: scape naked; frond smooth, radical, 3-parted, bipinnate; pinnules lunate, crenate; spikes bipinnate, and *B. obliquum* Muhl.—*B. fumarioides* var. *obliquum* Torr.—*Botrypus lunarioides* Mich.

HAB. Shady woods. N. Y. to Car. June. 2f.—Fern 9—12 inches high. *Frond* petioled, mostly ternate, but often more compound; segments lunate, closely resembling those of *B. lunaria*. *Capsules* in double rows on the branchlets.—I have carefully examined an authentic specimen of *B. obliquum* in the herbarium of Mr. Schweinitz, but can observe nothing to distinguish it from this species.

3. *B. dissectum* Willd.: scape with the frond near the base; frond ternate, thrice pinnatifid; segments decurrent, linear, wedge-shaped, sharply toothed at the end.

HAB. Dry woods. Near Philadelphia. Conrad. Washington City. Collins. N. Y. to Flor. Pursh. June. 2f.—Easily distinguishable from the next by its smaller size, and by the much more finely divided segments of the frond.

4. *B. virginicum* Swartz: scape bearing the frond in the middle; frond 3-parted, bipinnatifid; segments obtuse, about 3-toothed; spikes bipinnate, divaricate—and *B. gracile* Pursh.—*Botrypus virginicus* Mich.

HAB. Shady woods. Can. to Car. June, July. 2f.—Fern often 18—20 inches high. *Frond* near the middle of the stipe, divided into 3 principal branches, which are again variously divided. *Spike* pinnate or bipinnate, smooth or a little hairy.

ORDER CXLII. LYCOPODIACEÆ. De Cand. Lind.

Fructification axillary or spiked, composed of two kinds of 1—3-celled, 2—3-valved capsules, some containing minute granules, others a few larger corpuscles. *Stems* herbaceous or woody, simple or branched, erect or creeping. *Leaves* undivided, small, numerous.

1. LYCOPodium. Linn.

Capsules 1-celled, axillary, sessile; some 2-valved, filled with a farinaceous substance; others 3-valved, containing 1—6 globose corpuscles.

* *Spikes peduncled.*

1. *L. carolinianum* Linn.: stem creeping; leaves somewhat 2-ranked, spreading, lanceolate, very entire; peduncle erect, solitary, elongated, 1-spiked; bracts sublanceolate, entire.

HAB. Low grounds. Mass. to Car. July. 2f.—A creeping

plant, keeping close to the ground in muddy soils. *Peduncle* erect, 3—4 inches high, slender, with a single spike.

2. *L. clavatum* Linn.: stem creeping, with ascending branches: leaves scattered, incurved, ending in hairs; spikes in pairs, rarely in threes, cylindrical, pedunculate; scales ovate, acuminate, erose denticulate.—*L. tristachium* Nutt. not of Pursh.—*L. integrifolium* Goldie.

HAB. Pine woods. Can. and N. S. W. to Michigan. July. 2f.—*Stem* closely trailing on the ground, very long, rooting and throwing up fertile branches 4—6 inches high. *Leaves* linear-lanceolate, entire or serrulate. *Spikes* yellowish, erect.

3. *L. complanatum* Linn.: stem trailing, with dichotomous branches; leaves 2-rowed, connate, spreading at the tips; superficial ones solitary, appressed; peduncles elongated, supporting 4 terete cylindrical spikes.

HAB. Woods. Can. to Car. N. to Arc. Amer. July. 2f.—*Stem* 2—10 feet long, dichotomously branched. *Leaves* 4-rowed, short; two larger 2-rowed; smaller ones close pressed to the flattened sides of the stem. *Spikes* 2—4, on elongated peduncles.

4. *L. sabinifolium* Willd.: stem erect; branches alternate, dichotomous; leaves lanceolate, acute, in 4 rows, appressed, convex; spikes terete; scales subcordate, acuminate.—*L. alpinum* Mich.

HAB. White Mountains, N. H. N. to Labrador. W. to Michigan. July. 2f.—This species, of which I have specimens from the White Mountains, which agree in all respects with those in the Herbarium of Mr. Schweinitz, differs strikingly in appearance from *L. alpinum*.—The *stem* is erect, the *leaves* are large and somewhat spreading, lanceolate, acute or acuminate, sometimes denticulate. The whole plant also is larger, and the branches much longer.

** *Spikes sessile.*

† *Leaves in all directions.*

5. *L. dendroideum* Mich.: stem erect; branches alternate, crowded, dichotomous, erect; leaves linear-lanceolate, in 6 equal rows, spreading; spikes numerous, terminal, sessile.

b. *obscurum* Torr.: branches spreading; spike mostly solitary, sessile.—*L. obscurum* Linn. Big.

HAB. Shady woods. Can. to Car. July. 2f.—*Stem* 6—8 inches high, with numerous erect branches. *Spikes* 1—4 on each plant, an inch long, with broad ovate scales.

6. *L. annotinum* Linn.: stem creeping; branches ascending, dichotomous; branches simple; leaves in 5-rows, linear-lanceolate, mucronate, serrulate, spreading; spike oblong, solitary, sessile, terminal.

HAB. Mountain woods. N. S. N. to Arc. Amer. July. 2f.—*Stem* creeping, sending up 4—8 ascending branches, which are 6—8 inches high. *Leaves* spreading and somewhat reflexed

when the plant is advanced. *Spike* solitary, about an inch long. —Resembles *L. sabinæfolium*, but may be distinguished by its leaves.

7. *L. inundatum* Linn.: stem creeping, somewhat branching; branches simple, solitary, erect, with a single sessile leafy spike at the extremity; leaves linear, scattered, acute, entire, curved upwards.

HAB. Cedar swamps. Can. to N. Y. Pursh. N. to Hudson's Bay. July. 2f.—*Flowering branches* subradical, 3—6 inches long. *Leaves* linear, entire, with the floral ones somewhat dilated at base and spreading. *Spike* short, leafy.

8. *L. selaginoides* Linn.: stem filiform, creeping; branches suberect, the flowering ones simple; leaves scattered, lanceolate, somewhat spreading, ciliate-denticulate; spike terminal, solitary, sessile, leafy.

HAB. Moist woods. Can. and N. S. July. 2f.—*Fertile branches* 2—4 inches high, nearly erect, yellowish-green. *Leaves* of the fertile branches larger. *Spike* nearly an inch long, leafy.

9. *L. alopecuroides* Linn.: stem creeping, somewhat branched; branches nearly simple, elongated, ascending, with a single sessile leafy spike at the summit; leaves linear-subulate, ciliate-dentate at base, spreading.

HAB. Sphagnum swamps. N. Y. to Flor. Aug. 2f.—*Stem* long; branches densely leaved, 6—8 inches high. *Leaves* narrow, shining and somewhat spreading. *Spike* solitary, more than an inch long, very leafy. *Walking Fern.*

10. *L. rupestre* Linn.: stem creeping, with ascending subdivided branches; leaves scattered, imbricate, linear-lanceolate, ciliate, ending in hairs; spike solitary, sessile, terminal.

HAB. Rocks and side hills. Can. to Car. July. 2f.—A small creeping plant of a grayish-green colour, differing much in appearance from the other species. *Leaves* many-rowed, ending in hairs, which give the summit of the branches a whitish aspect. *Spike* short, square, and scarcely distinguishable from the stem below.

† *Leaves* 2-ranked.

11. *L. apodum* Linn.: stem branching and rooting near the base; leaves 2-rowed, roundish-ovate, membranaceous, acute, denticulate, flat; with superficial ones alternate, acuminate; spikes terminal, sessile, subsolitary.—and *L. albidulum* Muhl. Willd. Pursh.

HAB. Wet rocky places. N. Y. to Flor. July, Aug. 2f.—A small creeping species, which can be recognized at once by its 2-ranked, thin and membranaceous leaves.—Probably identical with the foreign *L. helveticum*.

*** *Capsules* axillary.

12. *L. lucidulum* Mich.: leaves in 8-rows, linear-lanceolate, denticulate, acute, spreading or reflexed; stem ascending, bifid; fruit axillary, not in a spike.

HAB. Low grounds. Can. to Car. July. 2l.—*Stem* 8—12 inches long, nearly erect, simple or bifid, dark green. *Leaves* longer than in any of the preceding. *Fruit* axillary, sessile, about an inch from the top of the stem, semicircular.—The stem often bears bulbs instead of capsules.

13. *L. selago* Linn. : stem erect, fastigiate, dichotomously branched; leaves scattered, linear-lanceolate, pungent, entire, imbricate, rigid; fruit axillary—and *L. recurvum* Willd.

HAB. Highest summits of the White Hills, N. H. Big. Arctic Amer. 2l.—*Stem* 3—8 inches high, rigid, with the branches of the same thickness from top to base. *Leaves* in about 8 rows, spreading, shining.

2. ISOETES. Linn.

Capsule membranaceous, not opening, immersed at the base of the frond, one-celled. *Seeds* angular, attached to numerous filiform receptacles.

I. lacustris Linn. : leaves subulate, flat, somewhat terete, fleshy, dilated and imbricate at base.

HAB. Bottoms of rivers, near Oswego Falls, N. Y. Pursh. Penn. Nutt. & Schreb. 2l.—*Root* broad and fistulous, with simple fibres. *Fronds* 2—5 inches long, dilated and imbricate at base, all radical, flat above, convex beneath. *Fruit* monoecious; *sori* cordate-oval, immersed in a corresponding cavity at the base of the frond.

ORDER CXLIII. MARSILEACEÆ. Brown. Lind.

Fructification radical. *Involucre* subspherical, not opening, coriaceous or membranaceous, 1 or many-celled.—*Aquatics*.

1. SALVINIA. Micheli.

Involucres 4—9, imbricate, connate, resembling an unilocular capsule. *Sporæ* inserted upon a central receptacle.

S. natans Willd. : leaves elliptic, subcordate, obtuse, with fascicles of hairs above; fruit subsessile, aggregated.—*Marsilea natans* Linn.

HAB. Lakes and still waters. Can. and western part of N. Y. Pursh. 5l.—*Leaves* nearly an inch long, opposite, 2 ranked, fine green. *Fruit* globular, in radical clusters, under water.—Floating on water like a *Lemna*.

2. AZOLLA. Lamk.

Monoecious. **STERILE** ovate, of two cells separating transversely; the upper containing several angular stalked bodies. **FERTILE** on the same plant; *capsules* numerous,

stalked, globose, of one cell and one valve, and in an ovate, close involucre. *Seeds* several, angular.

A. caroliniana Willd.: leaves two-ranked, imbricate, ovate-oblong, obtuse, spreading, red beneath.

HAB. Lakes, &c. N. S. and throughout the Southern and Western States. ☉.—A small plant floating on water, and somewhat resembling a *Jungermannia*. *Leaves* all radical, 2—5 inches long, subulate, fleshy, semi-cylindrical.

ADDITIONS AND CORRECTIONS.

Page 18, 5th line from the top, for “radicals” read radical.

Page 93, 7th line from the top, for “*Teprosia*,” read *Tephrosia*..

Page 96, 1st line, for “CERASSUS” read CERASUS.

Page 114, 16th line from the top, for “declinous” read diclinous.

Page 116, 2d line from the bottom, for “sessle, lianceolate” read sessile, lanceolate.

Page 125, 20th line from the top, after “many-seeded” add when mature.

Page 222, before VACCINEÆ, insert “

12. LEIOPHYLLUM.

Calyx deeply 5-parted, persistent. *Corol* 5-petalled. *Stamens* longer than the corol; *anthers* lateral, opening on the inside longitudinally. *Capsule* roundish, 5-celled, 5-valved, opening at the top. *Seeds* small, smooth, not winged.

Decandria. Monogynia.

L. buxifolium Ell.—*Ledum buxifolium* Ait.—*Ammyrsine buxifolium* Pursh.

HAB. Pine barrens, N. J. and high mountains, S. Car. May, June. ♀.—A small evergreen shrub 6—18 inches high, branching, smooth. *Leaves* small, oval-lanceolate, entire, smooth, coriaceous, with the margin revolute. *Flowers* numerous, white, in small terminal corymbs. *Sand Myrtle.*

Page 277, 17th line from the bottom, for “radicle” read radical.

Page 308, 9th line from the top, after “*Style* simple,” add *Nut*.

Page 310, 17th line from the top, for “commor” read common.

Page 326th, 22d line from the top, for “*Behela*” read *Betula*.

Page 337 and 339, for “CONIFEREÆ” read CONIFERÆ.

Page 390, 19th line from the top, for “*Agrostris*” read *Agrostis*.

Page 394, after the 6th line, insert

** *Flowers in panicles.*

Page 417, 12th line from the top, “*Lymnetis*” read *Limnetis*.

Page 420, 11th line from the bottom, for “*Thurb.*” read *Thunb.*

Page 429, 22d line from the bottom, for “*Killingia*” read *Kyllingia*.



INDEX

OF THE

ORDERS AND GENERA,

WITH ACCENTS.

☞ The Names of the Orders are printed in small capitals—the Genera in roman—Synonyms in *italic*. The figures occurring after the letter *s*, also refer to the Synonyms of the Genus.

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